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food DIGEST

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Department of Scientific and Industrial Research, New Delhi

NATIONAL INFORMATION CENTRE FOR FOOD SCIENCE AND TECHNOLOGY

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FOOD DIGEST

Vol.11 No.1

January—March 1988

National Information Centre for Food Science and Technology
Central Food Technological Research Institute,
Mysore — 570 013, India

CONTENTS

RAW MATERIALS

1 Dehydrated green pepper

It was found that for making dehydrated green pepper, cultivars like 'Kalluvally', 'Karimunda' and 'Chetan' give a bright green product with very good flavour; and its green colour remains stable for fairly long periods.

(Spices News Letter 21(12), 1987, 21)

STORAGE AND INFESTATION CONTROL

2 Ceramic material irradiates food to maintain freshness

Fukutani (Fukuya) has developed a 'super resin' ceramic packaging material which retains the freshness in fruits, vegetables, fresh fish, meat and frozen foods by radiating far infra red rays into the moisture in food. Thisleads to the resonation of water molecules thus maintaining the freshness and ensures proper maturing.

This packaging material differs from the conventional ceramics used for industrial purposes as it has been converted into sheets so that it can be used commercially.

In the case of vegetables, the far infra red radiation causes a rearrangement of the molecular structures of the cells in the interior of the vegetable, so the dryness and yellowing can be prevented. It has also been said that fruits and the like are preserved for a long time in a ripened condition.

When this material was placed in a rice container it was found that within 12-16 hours a three per cent increase in moisture had occurred. It was said that when cooked the grains had a sheen and a delicious taste, just like that of the year's first rice crop.

At present Fukutani (1-9-16 Sakae, Naka-ku, Nagoyashi - tel: 03 666 8411 (Tokyo office)) is marketing standard size bags (200 by 300 mm, 300 by 450 mm and 400 by 450 mm) through the Tokyo Co-op under the brand name of 'Fukuchan's fresh pack'.

There is also the possibility of laminating the material with K. Nylon. Suitable areas of application for the material could include the labels and seals markets.
(Packaging News August 1987, 20)

FOOD ADDITIVES

3 Chocolate company has all-natural fruit flavoured coatings in its future

Ambrosia Chocolate Company has taken its product line beyond the realm of chocolate, using an R&D policy that encourages imagination and patience.

The Regency line of ice cream coatings was introduced early in 1987 and consists of Coronation Dark and Winter White coatings. All natural fruit-flavoured coatings and artificially flavoured coatings, still in the production stage, will be future additions to the line. This product development comes at a time when coatings are an essential part of the premium ice cream novelty market.

The all natural fruit flavours which are close to being developed should have great appeal to premium candy, bakery and frozen novelty industries. These coatings will have the allure of fruit, the appeal of "all-natural" and the current success being enjoyed by other premium products.

Ambrosia's aim is to develop a fruit-flavoured coating with a more subtle taste than currently offered to the industry. These coatings will be oil-based with suspended fruit flavour solids. These all-natural fruit flavoured coatings should have an advantage in a market where most coatings are artificially coloured and flavoured.

While Ambrosia has also started work on artificially flavoured coatings, its primary goal is to continue research, via its pilot plant, on the natural coatings. The company has provided complete lines of quality chocolates and confectionery items since 1894.

For further details write to:

Ambrosia Chocolate Company, Milwaukee, Wisconsin, U.S.
(Food Engineering International August 1987, 20)

4 Gums aid food quality

The Dow Chemical Company has recently introduced its range of multi-functional cellulose derivative food gums into the UK food industry.

Already in use in America, Methocel food gums can be applied to many different foods to aid in quality and appearance. Perhaps the most unique property the gums possess is reversible thermal gelation. When heated the gums gel and then return to their original viscosity when cooled.

In fried foods, the thermal gel structure serves as an oil insoluble shield to hold in natural juices and block oil absorption. In baking, it aids in gas retention, increasing product volume and uniformity of texture, curbs boil over and improves crust crispiness in pies. Methocel food gums can also be used as thickeners, emulsifiers, suspending agents, film formers and binders. The gums do not affect the colour, taste or calorific content of the product.

(Food Manufacture July 1987, 21)

5 Starches improve UHT products

Following a series of trials on the performance of speciality starches under UHT conditions, National Starch has developed two new products, called Thermflo and National Frigex to improve the quality of processed dairy products.

This follows an extensive two year research programme aimed at improving its modified starch line to enable the company to meet the specifications of UHT processors.

The challenge was to develop new speciality starches that not only improved texture and flavour, but also offered improved process economics. The result was Thermflow, a waxy maize starch, and National Frigex, a tapioca based starch.

(Food Manufacture July 1987, 21)

PROCESSES

6 Milk/Juice drink

A German entrepreneur has succeeded in combining fresh milk with natural fruit juices into a stable, homogeneous refreshing drink. The drink comprising the two components at a 50:50 ratio is packaged in 500 ml light weight bottles. It is rich in high value proteins, carbohydrate and calcium and contains ten important vitamins from ten different fruits. The drink is said to have undergone long term successful marketing trials in a regional market of Germany and is now being sold nationwide where it is reported to be popular with consumers of all age groups. *(Dairy Information Bulletin 4(1), 1987, 13-14)*

7 Refreshing beverage with low alcohol content

Copacabana Exotic is a new carbonated citrus drink made with a low alcohol content (6%). Zimmermann Graeff, FRG is now bringing this beverage to the national market. The product will be sold in 71 bottles with colourful labelling to depict the fruits that are used.

Copacabana Exotic is very similar to what the Americans call wine coolers. Wine coolers have done exceedingly well on the U.S. market with sales of 61 million cases last year.

For details write to: Zimmermann-Graeff GmBH & CO.,K.G.,Zell/Mosel,FRG. *(Food Engineering International August 1987, 21)*

8 New technology for palm oil extraction

The Regional Research Laboratory (RRL), Trivandrum, has developed a technique for palm oil extraction, which can considerably solve the edible oil shortage in the country. It has set up a mini-palm oil extraction mill to produce high grade palm oil, which can be consumed without further processing. Under proper management practices, one hectare oil palm, may yield up to six tonnes of palm oil per year. This can be further enhanced up to eight tonnes a hectare by tissue culture.

Raw palm oil is one of the richest natural sources of Vitamin A. One kg of oil contains 700 mg of carotenes, precursors for Vitamin A and refining and bleaching remove all the carotenes besides increasing

the cost of production. The raw palm oil extracted and purified at the RRL contained less than one per cent FFA and can be used straightaway for edible purposes.

A study conducted by the RRL shows 60 per cent consumers accepted the colour. However, the consistency, flavour and degree of smoking had an acceptability level of 73 per cent, 90 per cent and 86 per cent, respectively.

Commercial cultivation of oil palm has been started in Kerala in 3,700 hectares and in Andaman and Nicobar 1,200 hectares. A detailed evaluation covering end-use properties, storage stability, nutritional studies and EST marketing is being made. A demonstration plant using the RRL technology is being set up at the CPCRI Research Centre at Palode as a national facility. The unit, which can produce 500 kg of oil a shift, can cater to the need of a 150 hectare oil palm plantation.
(Chemical Products Finder 6(8), 1988, 113)

9 Garlic oil at low cost

Nowadays, garlic oil is a household medicine used as preventive and curative medicine for many diseases. It is commonly being applied for curing gout, rheumatism, gastrointestinal problems, throat infection, cough, cold, skin and lung diseases, anti-cholestrol to prevent hypertension, etc. It improves liver functions, stimulates the heart and elimi-nates blood impurities. The Bangladesh Council of Scientific and Industrial Research has developed a simple process to extract garlic oil at a very low cost (US $ 0.50/100 ml).

The project on which the estimate was based indicated a maximum capacity of 800,000 bottles of garlic oil (100 ml/bot) annually in 300 working days in single shift of 8 hours. The principal machinery consists of a filter press and a crusting machine to process the final output. The estimated cost of the plant is about US $14,000.
(Technology Digest 14(1), 1987, 3)

10 Neem edible oil

Hort Court Butler Technological Institute, Kanpur was successful in refining neem oil to produce high quality odourless, colourless oil.

Without any bitter taste, which could be an important source of edible oil. The bitter components, acids and colour of neem oil had been separated to produce a tasteless and protein rich de-oiled meal which could be used as cattle feed.
(Documentation Bulletin No. 67, 1987, 8)

11 Production process for extruded fish products

A Danish firm has developed a new production process for extruded fish products. In this technique, small pelagic fish are homogenized together with flour and put through an extrusion process which leaves a semi-product with a shelf-life of years. These semi-products can be converted into fish containing pasta products, fish snacks, instant fish soups and so on. This process helps utilize small pelagic fish without loss which may exceed 30% in tropical areas. It also gives fish products with a high nutritive value. A pilot plant is in operation in Denmark since 1985. For details contact: Jutland Technological Institute, Food Technology Department, Technologiparken, 8000 Aarhus C, Denmark.
(Asia-Pacific Tech Monitor November-December 1987, 24)

PROCESSED PRODUCTS

12 Fibre-rich bread

One of the first Canadian calorie-reduced breads has hit Ontario shelves - Dempster's Light. Corporate Foods Ltd. expects its new bread to do well with diet and health conscious consumers since the bread has only 40 calories a slice.

The high fibre level is attained through the use of FIBRIM Soy Fibre, derived from soya beans. Dempster's Light is the first Canadian consumer bread to contain this fibre, which is from a natural source containing no cholesterol and low in fat and sodium.
(Food in Canada 47(7), 1987, 12)

13 Preserves are additive free

A new range of jams and marmalades made with Mauritian raw cane sugar is being launched by the Saffron Whole Food Company.

The raw cane sugar varieties include: strawberry; apricot; black cherry; blackcurrant and peach as well as vintage orange; orange and ginger; tangerine; peel-less orange and fine cut marmalades.

Saffron Whole Food is maintaining its all fruit preserves label because the sugar contains no additives or artificial colourings. The preserves, available in 12 oz sizes, will retail for £ 1.20 for jams and £ 1.10 for marmalades.

(Food Manufacture July 1987, 107)

EQUIPMENT AND MACHINERY

14 New grain cleaning machine

An economical and portable cylindrical screen grain cleaning machine has been developed. The new machine consists of two replaceable cylindrical screens of different wiremesh sizes, a feed hopper with feed control mechanism, a blower and a drive unit. All these parts are mounted on an angle-iron frame. A suitable mechanism for changing the screen slope is also attached to the machine. The pan provided below the outer screen to receive undersize materials is vibrated with the help of a cam and connected rod. The machine is operated by 1 hp single phase electric motor. Both the screens rotate at the same speed and in the same direction. The power from the motor to the screen is transmitted through a V-belt and pulleys. The machine is portable and suitable for cleaning and grading cereals, pulses and oil-seeds. Contact: Indian Agricultural Research Institute, New Delhi 110 012.

(Documentation Bulletin No.69, 1987, 13)

15 Dehusking coconuts

The Caribbean Industrial Research Institute (CARIRI), West Indies, has developed and commercialized a simple coconut dehusking machine. It consists of a pair of spiked shafts arranged to rotate at different relative speeds. The coconut, held firmly against the shafts for dehusking, also keeps rotating. Finally, the nut remains on top of the shafts while the husk goes down the machine onto a conveyor. The all-steel machine is 5'6" long,3'4" wide

and 3'2" high. It is powered by a 3-hp motor and can be driven by the PTO of a tractor, or by a gas or diesel engine. The machine can turn out 300-400 nuts per hour. It takes only two to three people to mind the entire operation of feeding, dehusking and storing nuts.

For details contact: Caribbean Industrial Research Institute (CARIRI), C/o Tunapuna Post Office, Trinidad, West Indies.
(Asia-Pacific Tech Monitor September-October 1987, 23)

16 Soybean blanching unit

Central Institute of Agricultural Engineering (CIAE), Bhopal, India has developed a machine that blanches soybeans to eliminate anti-nutritional factors and make it fit for flaking and human consumption.

It is made of 22 gauge galvanized iron sheet. The fuel is burnt in the central cylinder on the removable grate. The outer cylinder is insulated by flattened asbestos rope and plaster of paris. The water is initially heated to boiling and then 20 kg soybean is poured into it. The temperature of 100 C is maintained for 40 minutes by continuously feeding fuel. The total time required per batch is about 2 hours. After blanching, the water and blanched soybean is removed by opening the gun metal valve at the bottom. The cost of the unit is Rs.900 (about US$75).
(Documentation Bulletin No.67, 1987, 8)

17 Mixers and mixer extruders

Baker Perkins SA, France manufacture mixers and mixer extruders which find applications in the production of goods such as; adhesives, coatings, colours, food related products (biscuit dough, butter, chewing gum, chocolate), pharmaceutical products, rubber compounds, and other products such as abrasive pastes, brake lining, insulation and sound proofing compounds, detergents, soaps, linoleum, floor tiles and industrial chemicals. The mixers and mixer extruders have a capacity range from 11 to 5,000 l and an installed power ranges from 2 to 350 HP. Machines are made of different materials of construction depending on the product.

For more details write to :Mascot Chemical Enterprises (P) Ltd., Mascot House, 875 West of Chord Road, II Stage, Mahalakshmipuram Extn., Bangalore, Karnataka 560 086.
(Chemical Products Finder November 1987, 67)

18 Mixing equipments

Navayug Industrials manufacture mixing equipments which run at high speeds from 750 RPM to 6,000 RPM and carry-out fast speed mixing. Made from SS 316/304, these can be fitted on pressurised or non-pressurised vessels, or reactions carried at vacuum. These can be used for mixing, dissolving, suspending, homogenising, aerating, and wet grinding in chemical, pharmaceutical, food, and paper industries. The mixing equipments are available to fit on batch process application from 50 to 3,000 litres volume. Also offered are stirring arrangements that can be fixed on reaction kettles.

For more details write to: Navayug Industrials, 23, Govt. Industrial Estate, Kandivli (West), Bombay 400 067.

(Chemical Products Finder November 1987, 74)

19 Multi-shaft high viscosity mixers

Aro-Grad Engineering has recently introduced a range of vertical multi-shaft mixers and dispersers for compounding products as thin as water or as heavy as the thickest adhesive. Heavy duty mixers in capacities ranging from 50 to 2,000 litres, disperse and process pastes far too heavy for standard single shaft machines. These multi-shaft machines handle products having viscosities in excess of 3,00,000 centipoises, with increased efficiency and speed. The mixing tubs may be jacketed for heating/cooling and may be operated under vacuum. Also available are mixers having scrapers to keep the sides of the tubs clean and increase heat transfer efficiency. Many variations of blades are available to emulsify, give extra fine dispersion, mix heavy paste or cut rubber. Applications for these mixers include paints, heavy inks, non-flow urethanes, adhesives, epoxies, sealants, plastics, tough chemicals, ceramics, grease, cosmetics and foods. Different viscosities and batch sizes or special problems can be handled.

For further information write to: Aro-Grad Engineering, 689, GIDC, Makarpura, Vadodara, Gujarat 390 010.

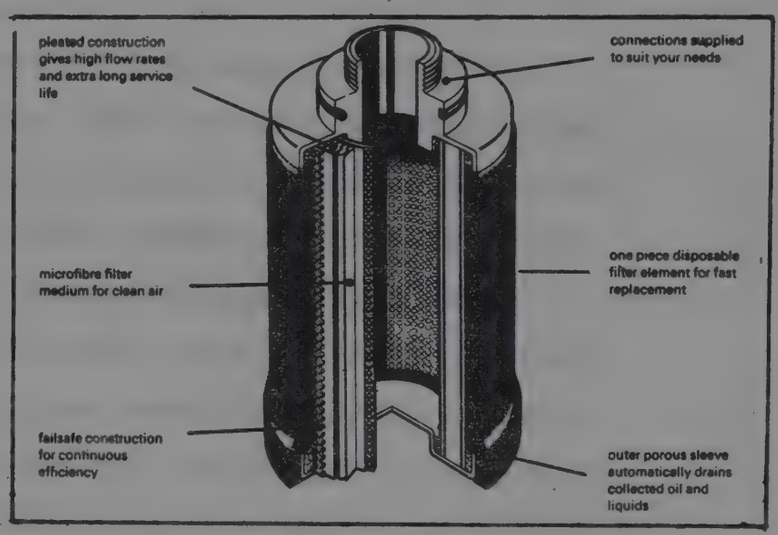
(Industrial Products Finder 1987 Annual, 173)

20 Magnetic stirrer

Skypharma Industries have developed a magnetic stirrer for use in pharmaceutical, foods and beverage, chemical and allied industries for stirring and preparation of mixtures and solutions. The unit is made of stainless steel and is electrically operated. Its internal components are precision made and individually inspected. Features include: extremely hygienic and tested as per GMP standards; simple to operate; contents do not spill while rotating; easy to wash and maintain; and portable and compact. The stirrer is available in 100 litres capacity with 0-1400 RPM.

For more details write to: Skypharma Industries, 78 Raja Industrial Estate, Purushottam Kheraj Road, Mulund (West), Bombay 400 080.
(Chemical Products Finder 6(8), 1988, 10)

21 Sub-micron filters



Siemag Industries, manufacturer of the popular Filter-Regulator-Lubricator, has introduced a complete range of compressed air, gas and liquid filters, hitherto imported, made with know-how from Process Scientific Innovations Ltd. UK. These high efficiency filters remove last traces of water and oil, and particles down to 0.01 micron. Normal range covers 5,1 and 0.01 micron to an efficiency of 99.99%. Siemag also manufactures activated carbon filters used for breathing quality air and odour removal duty. Made of borosilicate glass fibre web these filters are moderately priced and have long life. The filters are provided with automatic drains for oil/water condensates.

For further information write to: Siemag Industries, R.K. Industry House, Walbhat Road, Goregoan (E), Bombay 400 063.
(Industrial Products Finder 1987 - Annual, 559)

22 Double arm mixer-cum-kneader

Samson offers the Sigma kneaders of SS-316/SS-304 or mild steel with or without jacket. The agitator blades are correspondingly made of cast steel or cast iron, available in various designs and are of heavy duty cross-section. The kneaders find wide applications in various industries including confectionery, dyes and pigments, food and plastics, pharmaceuticals, Also available are special blades designed to suit dough moulding compound and fibre glass.

For more details write to: Samson Hitech Products Pvt. Ltd., 21/13-X, Block-A, Naraina Industrial Area, Phase II, New Delhi 110 028. *(Chemical Products Finder November 1987, 3)*

23 Mini oil expellers

Elktromek Industries manufactures mini oil expellers, suitable for extracting oil from copra, groundnut, cottonseed, soya bean, etc. The machines are available in capacities of 2, 6, 20 and 40 kg per hour. The 2 kg capacity models are available in hand operated and motor driven versions, and higher capacity models in motor driven version.

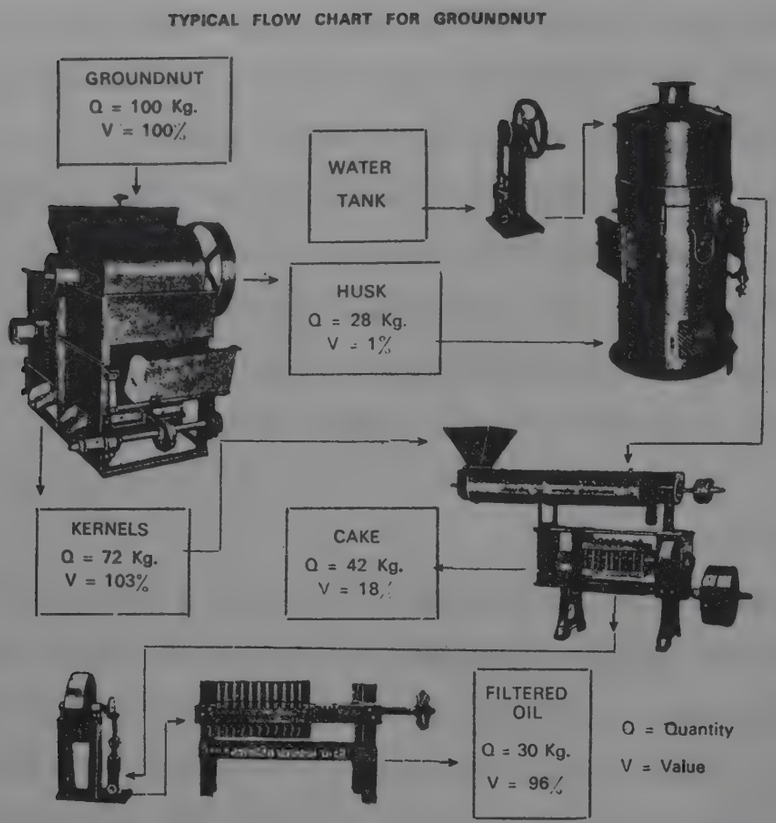
For more details write to: Elektromek Industries, 6-A, 6th Main, Road, III Phase, Peenya Industrial Area, Bangalore, Karnataka 560 058. *(Chemical Products Finder 6(7), 1987, 14)*

24 Tiny oil mills

Tinytech Plants Pvt. Ltd, India has developed a tiny oil mill which consists of expellor filter press, boiler, decorticator, etc. It runs on a 10HP motor or oil engine. The capacity is to crush 60 kg of oil seeds per hour. It suits edible or non-edible oil seeds and is most appropriate for rural application.

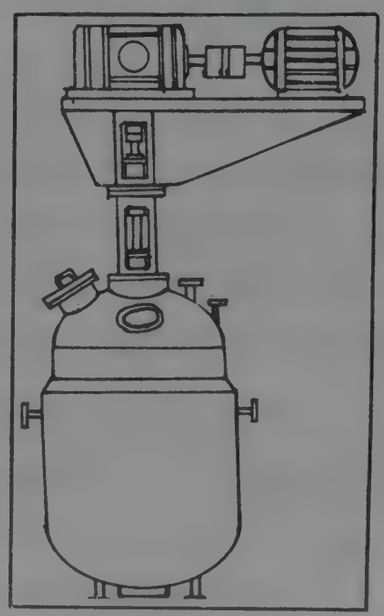
It can be installed in any village which has sufficient supply of oilseeds. It is under commercialized production in India since 1984 and over 170 mills are in operation.

The company can sell complete tiny oil mills or the technology to manufacture them to a particular country simply by charging a consultancy fee and charges for engineering drawings. All the components can



be manufactured using locally available raw materials. *(Asia-Pacific Tech Monitor September-October 1987, 28)*

25 Reaction vessel



Watrion have introduced reaction vessels and kettles, heat exchangers and various other types of chemical equipment to cater to the requirement of industries such as pharmaceutical chemical, pesticide, paint, soft drinks and breweries. Reaction vessels are made of SS 304 or any other material to suit user's specification in capacity range of 100 to 3,000 litres. The agitator can be of anchor, turbine or any other design to suit service requirements. To ensure smooth opera-

tion for days, a stuffing box with or without water cooling arrangement and a special bearing housing with self-aligning tapered roller bearing are provided.

For more details write to: Watrion Water & Filter Engg. Pvt. Ltd., 34A, Rameshwar, Four Bangalow Road, Bombay 400 059.
(Chemical Products Finder 6(7), 1987, 79)

26 Snack food extrusion equipment

Aro-Grad Engineering have introduced a complete range of indigenously developed equipment for snack and pet food extrusion to manufacture various shapes from a range of possible corn/rice/potato/soya based ingredients. The heart of the system is the extruder cooker which employs a dry extrusion process, creating heat through pressure and friction. Heat and pressure are used to cook and expand ingredients, gelatinise starch, destroy inhibitors where present and modify or sterilise by-products and dehydrate moist waste materials. With this dry extrusion process, no additional heat source is required as it relates to the extruder function, thus eliminating the capital and operating costs of boilers and driers. Also available is auxiliary equipment to clean and mix raw materials, cool extruded products, apply flavour, and to facilitate material handling.

For more details write to: Aro-Grad Engineering, 689 GIDC, Makarpura, Vadodara, Gujarat 390 010.
(Chemical Products Finder 6(8), 1988, 16)

27 Pickle filling machines

SAPFH4 provides a semi-automatic facility to fill heterogeneous foodstuffs such as pickles containing solid lumps of mango, lime, chilli, brinjal, carrot, etc. to a preset adjustable volume.

In addition the SAPFH4 will top up the filled bottles with an adjustable quantity of oil after they are moved to the oil filling station of the machine.

The standard machine handles 24 bottles of 340 cc capacity per minute leaving hardly any significant air pockets entrapped. The machine is adjustable for bottles with smaller volumes upto a maximum capacity of 500 cc.

Pickle from the stainless steel hopper is fed into measuring chambers and then expelled into the bottles via ducts by means of pistons working under air pressure.

The filling operation is so designed that in case of overloading due to jamming by solid lumps the machine will stall and thus avoid damage to the working parts. By manually dislodging the obstructing solid matter and restarting the cycle, the machine is put back into operation.

This novel filling machine affords the following advantages and benefits:

Improves productivity both at the filling and oil topping stages reducing production costs.

Both filling and oil tapping are done cleanly without wastage and overspill or dirtying the outside surfaces of bottles. This ensures that the bottles are ready for capping without otherwise doing an extra cleaning operation.

The SAPFH4 obviates the need of manually tamping out air pockets or topping up with oil and cleaning the outside surface of the bottle. Eliminating these unnecessary operations LEADS TO REDUCING RECURRING LABOUR COSTS TO ONE-THIRD. The equipment is sturdily built and affords trouble-free service with the minimum of maintenance.

Spares or optional items can be supplied when required.

Increased productivity and flexibility in coping with seasonal demands leads to phenomenal reduction in labour costs, hygenic filling operations and increased profits.

For details write to: Technovation, 4, Paramel flats, St. Cyril Road, Bombay 400 050.

28 Microwave dryer

The Fitzpatrick Comp[illegible] has introduced a new microwave vacuum dryer designed to extend the advantages of low temperature, self-contained, microwave processing to larger production bacthces.

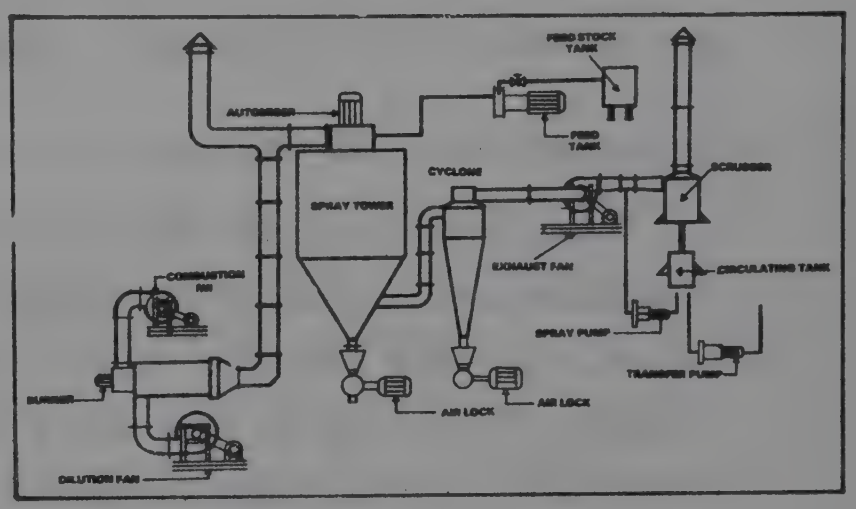
The new dryer, called Wavac, offers greater efficiency, shorter drying times and less wastage than conventional tray or fluid-bed dryers. Using an unusual approach to combining low-pressure vacuum, microwave energy and improved agitation (stirring), the Wavac concept also extends

the performance of previous drying concepts. In addition, its complete system containment affords economical solvent recovery and eliminates the need for secondary airstream cleanup.

The Fitzpatrick Company designs and manufactures blending, compaction/densification, granulation, prebreaking, fluid-bed drying and other equipment to meet the processing needs of the food processing, plastics and other industries. The company maintains product test and evaluation laboratories in South Plainfield, New Jersey, and Elmhurst, Illinois.

For further details write to: The Fitzpatrick Co., Elmhurst, Illinois, U.S.
(Food Engineering International June 1987, 79)

29 Spray dryer



Industrial Blower Manufacturers has successfully designed, manufactured and commissioned Disc Type Atomiser Spray Dryer. Spray drying by definition is transformation of the feed from fluid state into a hot drying media. It is a continuous process. Feed can be either solution, suspension or paste. The advantage of disc atomiser is trouble-free atomisation of the feed stock by a centrifugal force created by a rotating disc. IBM's disc atomiser is corrosion and wear-proof. It is possible to design spray dryers for various products which need different residence time and different input and output moisture. The heating media is air. It can be heated directly or indirectly as per the requirement of products.

For further information write to: Industrial Blower Manufacturers, E-13 Nandjyot Industrial Estate, Safed Pool, Kurla-Andheri Road, Bombay 400 072.

(Industrial Products Finder 16(4) 1988, 146)

30 Natural circulation solar-energy crop dryer

A British-firm has developed a low-cost, natural circulation solar-energy crop dryer, suitable for Third World villages. The system consists of a 3m wide, 7m long transparent drying chamber of semi-circular cross-section, fitted with a transparent solar chimney draped internally with a solar-energy absorbing surface. Moisture from the crops is carried away by a buoyancy-driven air stream. This is a rapid drying system and the crop loss is low. There is no auxiliary power requirement. A pilot plant is in operation in Nigeria since 1984.

For details, contact: Dr.Brian Norton, Solar Energy Technology Centre, Cranfield Institute of Technology, Bedford MK43 OAL, United Kingdom.

(Asia-Pacific Tech Monitor, November-December 1987, 23)

31 Solar dryer for drying fish

The dryer consists of a PVC cover stretched over a domed tunnel framework consisting of galvanized steel conduit held rigid by internal wires. The fish are held on multiple racks within the dryer which is capable of holding approximately 20-30 kg of fish per square meter of floor area. Ventilation is provided either mechanically by fans, or by aligning the dryer in the direction of prevailing wind which is allowed to enter one end and exhaust through the other. However the efficiency of this solar dryer lies in its ability to reduce the moisture content of fish which have already been pre-dried on a drying rack.

(Documentation Bulletin No.69,1987,19)

32 A new low-heat continuous drying system to dry food on the horizon

A new low heat continuous drying system to dehydrate foods has been unveiled by Precision Drying Systems (PDS) Princeton, N.J., USA. It has developed a low heat dryer. There are already several types: freeze dryers, vacuum dryers, drum, air and spray dryers.

In the low heat dryer, food and hot air is piped into the stainless steel drying machine from opposite ends. Inside the food moves up and down continuously in a bed of spherical metal balls, which transfer heat to the food and thereby dry it. When dried the food emerges as small

chunks or powder. Because the hot air is at a relatively low temperature of 100 F, essential vitamins, minerals and flavour are not lost. The new system matches is preserving the high quality of food obtained in freeze dryers, but is 50% less expensive. It has the ability to retain the integrity of substances, but is also economical.

The new system is the brain child of the Swedish inventor Eric Carlsson. The system of Carlsson was modified by Eric Rockstrom of PDS for widespread use in food and pharmaceutical industry. The new PDS system is expected to be marketed between $400,000 and $2 million depending on the size of the system. It will be cheaper in operation than the expensive freeze drying systems on the market.
(Chemical Weekly 33(13), 1987, 74-75)

33 Expansion of existing evaporators and dryers

By adopting advanced process technology and low energy consumption technique, SSP has engineered a system in the field of expansion of existing evaporating and drying plants. Plant capacity in evaporator can be increased by 300%, whereas in drier plant capacity can be increased up to 100%. In case of evaporation, plant capacity can be increased by addition of a number of effects with the benefit of reduced specific steam consumption. In case of driers, plant capacity can be increased by increasing the inlet air temperature or by addition of a second stage drier or by addition of a nozzle system. Inlet air temperature increases the heat utility efficiency by about 20%. Expansion can be carried out in the existing building with minimum space requirement. SSP has so far expanded the capacity of about 30 dairy and food processing plants throughout the country.

For further information write to: Faridabad Stainless and Steel Products Co. Pvt. Ltd., 19-DLF Industrial Area, Phase-II, 13/4 Mathura Road, Faridabad, Haryana 121 003.
(Industrial Products Finder 1987 Annual, 12)

34 Venuleth dryer

New Multifab Engineers Pvt. Ltd manufactures a wide range of direct contact dryers. These agitated vacuum type rotary dryers are called Venuleth Dryers, ideal for handling highly heat-sensitive materials, where the drying is carried out at a relatively low temperature. The Venuleth Dryer is made of a stationary horizontal jacketed drum with a rotating shaft having spiral blades connected to a suitable driving system. This specially designed vacuum dryer can handle slurry as well as cake as feed. While heat is transferred through the external jacket, the central shaft blade keeps the product in constant movement. Thus, the product along the wall is constantly replaced. This sweeping action attains higher heat transfer coefficients between the drying material and the heated interior surfaces. Due to low speed of rotation, no damage is caused to the product. Particle size of dried solid can be reduced if required with knocker bars. Specific advantage of Multifab Venuleth Dryer are: High thermal efficiency; clean and closed operation with no atmospheric contacts; minimum manpower requirement; possibility of solvent recovery; and improved products quality due to low temperature drying. It can perform as a reactor-cum-dryer, and replace conventional tray dryers, etc, with lesser operating time and minimum handling losses. The Venuleth Dryer eliminates subsequent pulverising of the product, and is available in a wide range of materials and capacities from 500 to 5,000 litres. Pilot plant testing facilities are availble at the Multifab factory to try out custom specified applications. A plot model of Venuleth Dryer of 50-litre capacity is available with complete technical assistance from the manufacturer.

For more details write to: New Multifab Engineers Pvt Ltd., 225 Gala Complex, D Upadhyaya Marg, Mulund West, Bombay 400 080.
(Chemical Products Finder 6(7), 1987, 95)

35 High vacuum molecular distillation plant

AVC manufacture high vacuum molecular distillation plant which find applications in perfumery, flavour, pharmaceutical, fine chemical and food industries. When highly heat sensitive materials are to be processed at low temperature, high vacuum becomes mandatory which results in very

good product quality besides saving in the energy inputs. The molecular distillation plant manufactured employ vacuum as low as 0.00001 mm^2, production rate up to 800 kg/hr, evaporation areas up to 5 m^2. Materials of construction include SS 304, SS 316L, and titanium. The vacuum pumps include vapour booster pumps, diffusion pumps backed by mechanical pumps. The plant is used for stripping of fatty acids, recovery of solutes from solvents, lubricating oil reclamation (without acid treatment), and vitamin A and E manufacturing. Centralised condensors, besides the external condensors are provided for the continuous separation of distillates and residues. High vacuum ball valves are used for maximum conductance. Sensitive instruments made the plant automatic in the R&D or production departments.

(Chemical Products Finder 6(7), 1987, 83)

36 Biscuit manufacturing equipment

Viçars Group of UK offers complete packages of machinery to handle every stage of biscuit manufacture: for mixing, shaping, baking, and packing 150 kg of biscuit mixture per hour. The package, designed for soft and semi-sweet, digestive and rich tea biscuits, incorporates a combined vertical and moulding machine. The company has already supplied this type of machinery to biscuit manufacturers in India.

For further information write to: Hi-Tech Systems, 80 Hardwar Road, PO IIP, Mohkampur, Dehra Dun, Uttar Pradesh.

(Industrial Products Finder 16(3), 1987, 101)

37 Soymilk plant

Soya Technology Systems Limited offers three sizes of soyamilk plants. The output of each plant depends on the protein content desired. Optimum production capacity proposed is 4000 litres per hour. Raw materials used are soybean, water, sweeteners and flavourings depending on the product. Equipment machinery cost (FOB) US$2,750,000 (approx).

(Asia-Pacific Tech Monitor September-October 1987, 34)

38 Tea processing machine developed

A new tea processing machine, "Sennova", a major breakthrough in the processing technology of CTC tea, has been launched at the Darrang tea estate in Assam, reports UNI.

The machine developed by Mr. Mohit Sen of the Tea Broker Company eliminates the need for rolling tea leaves before the CTC process.

Official sources said the new machine's output was about twice that of the conventional machine with only half its power consumption. It also cuts down the space requirement by about 70 per cent. Liquors produced by the new machine are "brighter and brisker", the sources claimed.

Describing the machine, the sources said, Sennova has four 30 inch-wide processing units placed at tandem, each fitted with the Sennova dejamming device. The new machines are also fitted with 17.5 inch-diameter drums instead of the eight-inch-roller of conventional machines.
(The Economic Times 25 February 1988, 12)

39 Solar tea boiler

A solar tea boiler has been designed, developed and tested at the Central Arid Zone Research Institute (CAZRI), Jodhpur, by N.M. Nahar, a scientist in the Division of Wind Power and Solar Energy Utilization

The device can be successfully used for preparing 125-150 cups of tea per day in office canteens, road side tea stalls and restaurants.

The device can also be installed on a moving four wheeler hand cart and tea can be served at various places so that it will generate employment and will conserve lot of commercial fuel.

The device consists of a flat plate collector and a container for water and milk. The flat-plate collector is made from copper tubes. The diameter for riser is 12.5 mm and for header is 19 mm. The distance between two risers is 100 mm and an aluminium sheet is wrapped over these

and fastened tightly with galvanised iron wire. The absorber area is 0.9 m^2. It is encased in a painted mild steel tray with 75 mm bottom resin bonded fibreglass insulation. Maxorb solar foil is fixed over it as selective coating having solar absorptance 0.97 and thermal emittance 0.11. One clear window glass (4 mm thickness) is fixed over it. If maxorb foil is not available then it can be painted by mat finish black board paint and two glass covers used instead of one. Arrangement has been made to change the tilt of flat-plate collector on 1st and 15th day of each month so that maximum solar radiation can be obtained through out the year. The bottom of flat-plate collector is connected with water and milk container and tap is connected at the outlet of the collector. When tea is required, the tap is opened and instant boiled water and milk can be obtained. After mixing tea and sugar, tea can be served.

The device was tested for boiling of water and milk. The boiled water was collected every ten minutes from the device and observations were recorded from 10 AM onwards on clear as well as on cloudy days. The efficiency of the device was found to be 34.2 per cent.

On an average the device can be used to boil 16.5 litres of water and rise in water temperature was observed to be 65 C. The operating temperature being 95 C or more. It has been observed that 300 clear sunny days are available in most parts of India. Accordingly fuel-saving calculations show that the device saves 677 kg of firewood or 492 kWh of electricity or 169 kg of coal or 78 litres of kerosene. The cost of the device is Rs.1000/- which can be recovered within 2.5 to 5 years depending on the fuel which it replaces.
(PTI Science Service 7(4), 1988, 7-8)

40 Snack foods flavoured/oiled simultaneously

A spraying unit, which applies oils and flavours simultaneously to savoury biscuits and potato-starch-based snack foods, has been developed by a British company. The machine obviates the extra handling and quality control problems that can occur when products are oiled online and then flavoured offline in tumblers; it also reduces costs by ensuring an even thickness of coating and is not subject to feed-pipe blockages. The unit is designed for high-speed automatic processing lines with capacities of up to 1,000 kg of extruded products an hour. Pre-blended mixtures of oils

and flavourings are sprayed on to the products through spinning discs mounted above and below a variable-speed conveyor.

For further information write to: Arcall Ltd., 1 Westminster Road, Industrial Estate, Warcham, Dorset BH20 4SR, U.K.
(Industrial Products Finder 1987 Annual, 395)

41 Starch extraction technology

As a long time innovator of process technology in the starch industry, Westfalia Separator, Oelde, FRG, has planned the introduction of new techniques and processes for economic starch extraction at the Starch Conference 87 in Detmold, RRG. The company's goal is to provide processors with optimum raw material yields together with a reduction in waste-water.

According to Westfalia, processes have been developed for the production of potato starch, corn starch and root starch which meet the highest technological requirements. Separators and decanters play key roles in these processes.

Decanters are used to process suspensions with very high solids contents. In the extraction of starch from tubers such as potatoes and manic, they perform the following functions: fruit water separation, pulp de-watering, and potato protein recovery. When processing cereals such as corn, wheat and rice, their functions include: gluten-starch separation, gluten de-watering, classification of A-starch, concentration of B-starch, de-watering bran and fibers.

The use of a decanter is advantageous for downstream equipment as regards water consumption and starch quality. Depending on the process sequence and the potato protein installation, 65-90% of the protein and fruit water is recovered at the beginning of the production process.

The ejected concentrate is discharged continuously through nozzles fitted at the periphery of the bowl. In the case of separators equipped with an annular valve, total de-sludgings can be carried out in addition to the continuous nozzle discharge.

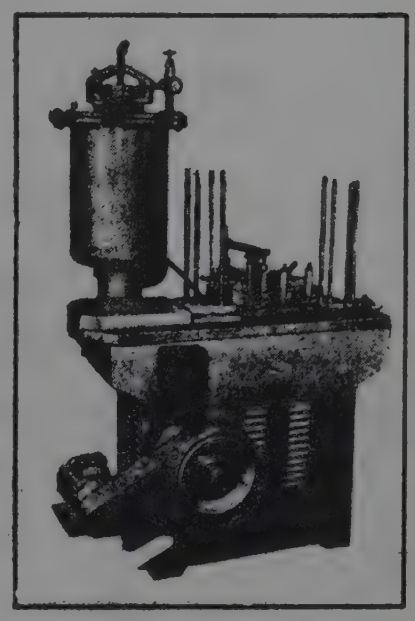
If the separators are equipped with a recycling device, part of the concentrate can be recycled back into the bowl directly in front of the nozzles. The clarifying efficiency of the disc stack is thereby not impaired. Even in the case of fluctuating feed conditions and a low solids content, the maximum solids concentration for the particular product can

be achieved.

With nozzle bowl separators featuring a washing device, the soluble and insoluble protein is separated from the starch. The concentrate is washed with fresh water or process water.

(Food Engineering International June 1987, 76)

42 Can end solutioning machine



Recon-has introduced an automatic can end solution machine. By applying a latex based compound on the can's bottom and top, the machine ensures the hermetic sealing of a can. The curled components are stacked in a magazine which get automatically transported to a spinning chuck rotating at 500 RPM. The solution stored in a.pressurised tank flows to a nozzle, which opens by a cam-operated needle to allow the solution to drop into the channel of the spinning can end. Then the solutioned can end is again transported to a magazine which gets stacked up for easy removal. It can be used for solutioning components of 202 to 700 mm dia with additional change parts. The machine can also be modified to apply PVC compound to RO and lug caps of different sizes.

For further information write to: Recon Machine Tools Pvt. Ltd., 37 Sarvodaya Industrial Estate, Mahakali Caves Road, Andheri (East), Bombay 400 093.

(Industrial Products Finder 16(2) 1987, 15)

43 Reclosable roll-on caps for aerated beverages

New roll-on pilferproof aluminium caps with a plastisol flowed-in gasket can now allow even aerated beverages to be capped with a reclosable feature. This new capping system from Metal Box does not require any opening device as opposed to crown-corks. It is particularly suitable for synthetic aerated beverages which require high gas pressure retention, or beer which requires pasteurisation after bottling, or hot-filled

products like ketchup which develops vacuum on cooling, or pure fruit juices and still drinks which need boiling water processing after hot filling. These caps, known as Coronet caps, are best suited for take-home, multi-shot, large capacity glass, or light weight PET bottles. At present, Metal Box manufactures Coronet caps of 28 mm diameter only and can offer these printed to customers' designs along with the machine changeparts for sealing the caps on to glass bottles.

For further information write to: Metal Box India Limited, Post Box 1169, 114 Elaiy Mudali Street, Tondiarpet, Madras 600 081. *(Industrial Products Finder 16(3), 1987, 185)*

44 Instant tea/coffee dispensers

Park Trade Corporation offers instant/tea coffee dispensers adapted to Indian conditions. Called the Hot Pot Integra Tea/Coffee Vendors, they can make, store, and serve ready made tea brew and warm milk, or hot water and warm milk to make tea (with tea bags or batch tea in kettles), and instant coffee. Several models having different capacities are available. An attachment is also available for those who would like to have reboiled (Ookaro) tea.

For further information write to: Park Trade Corporation, 1107 Arcadia, 195 Nariman Point, Bombay 400 021.

PACKAGING

45 Modifiers approved for food contact applications

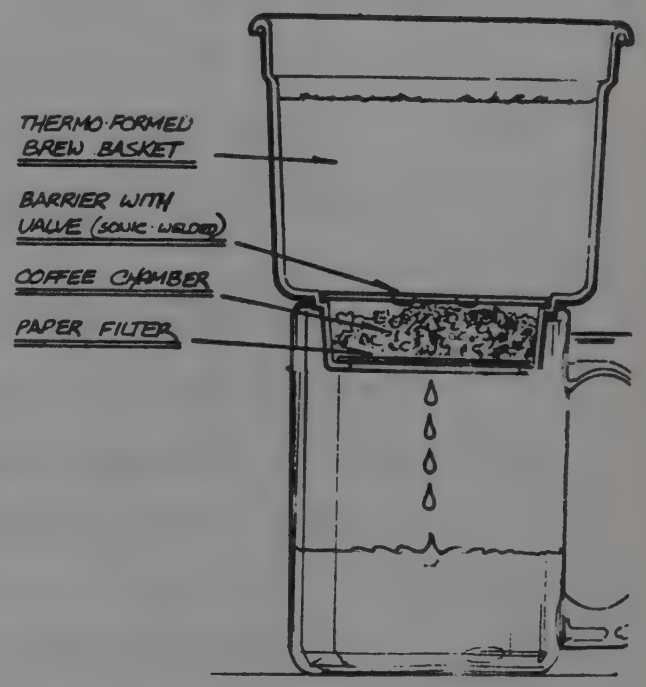
The vast majority of the Baymod A range of ABS and SAN modifiers for PVC and other plastics, produced by Bayer AG, West Germany, have now been approved for food contact applications throughout Europe. The grades

in question are to be designated with an additional code letter F (= food). Applications include film and thermoformed articles for packaging jam and margarine.

For further information write to: Jagat Chemicals Private Limited, Express Towers, 17th Floor, Nariman Point, Bombay 400 021.
(Industrial Products Finder 1987 Annual, 239)

46 One-cup coffee package designed for microwave

Micro-cup, a drip-type disposable package that makes a single cup of fresh-brewed coffee in microwave ovens, has been developed by Innovations and Development Inc. (IDI), an Edgewater, N.J. product development and package design firm.



According to Gary Grossman, IDI president, Micro-Cup provides a low-cost, time-saving alternative to instant coffee and gives consumers a choice of various types of coffee including decaffeinated.

The thermoformed brew basket, placed directly on a cup or mug, has two chambers - an upper reservoir for water and a lower chamber for fresh ground coffee. A non-toxic substance separates the two areas and serves as a valve. When the water reaches 190 F (less than 2½ minutes in a 600-watt microwave), the valve melts allowing the water to extract the coffee and pass through the filter into the cup below. Within minutes, a freshly brewed cup of coffee is ready for drinking and the entire filter package can be disposed of. The brew basket is made a microwave safe material.

After the coffee is brewed the entire Micro-cup filter package can be discarded.
(Packaging 32(13), 1987, 31)

47 Portable food packaging machine

This portable packaging workstation can generate 95% vacuum to protect vitamins, aroma, and flavour while preventing molds, aerobic bacteria, and effects from humidity and insect infestation. It is especially suitable in tropical countries for preventing mold in the stored food. All types of food, medical supplies, chemicals, seeds, instruments and weapons can be vacuum packed in plastic pouches, or in glass jars or containers with this unit. It weighs only 27 kg and can be wheeled to any place and requires no setting time. It is priced at US$1125 per unit and can be obtained from: H.G.Stenger Sandhof Corp, Dept. C.N.,299 Madison Ave, #402 New York, New York 10017, USA.
(Technology Digest 14(1), 1987, 4)

48 Automatic wrapping machine

Autopack Machines (Pvt.) Limited, an Indian company, is offering an automatic wrapping machine that can handle a variety of rectangular cartons used in the pharmaceutical, food processing and cosmetics industries.

The 2 KW (maximum) machine can wrap 60-120 cartons per minute, depending on the size of the cartons.

The machine cuts the cellophane/BOPP film, from a roll mounted on it, to required size, wraps it around the carton and seals on one end and two sides using 110V electrical heaters.

The advantages claimed include its ability to handle a variety of foils; input conveyor for easy handling; facility to adjust temperature (within 1 degree c) of the heaters independently; limited change of parts when switching carton sizes; and polished and plated contact parts.
(Economic & Commercial News 17(49), 1987, 12)

49 Aseptic packaging for low-acid foods

Genesis Packaging Systems, Pittsburgh, Pa, has announced a successful low-acid food process filing by Land O'Lakes, Inc.'s custom products division with the Food and Drug Administration.

The process involves use of a Freshfill SL-1 aseptic filling and sealing machine. Designed and built by Metal Box Engineering and dis-

tributed by Genesis, the machine will fill and seal a variety of container sizes.

According to Alan Silverman, Genesis vice president,marketing and sales, the Freshfill machine is a standard design that uses preformed cups and offers considerable versatility to users who are interested in product development and consumer or market tests. He noted that the SL-1 was designed and built to meet the FDA's hydrogen peroxide requirement of 0.1 ppm or less residual level. The FDA subsequently lowered the requirement to a level of 0.5 ppm.
(Packaging 32(13), 1987, 28)

50 Carton sealing machine

Novel Thermoplast manufacture semi-automatic and automatic carton sealing machines for pharmaceutical, engineering, chemical and food processing industries. The machine uses self-adhesive tapes, which have comparatively superior tensile strength, adhesion, water and weather resistance, etc. High quick stick adhesion combined with extra strength makes biaxially oriented polypropylene (BOPP) tapes suitable for carton sealing machine consists of auto feed mechanism, flap closure device and taping mechanism. The filled cartons are automatically fed by auto fed to the flap closure device. This device closes the 4 flaps and passes to the taping mechanism to apply the tape on the top and bottom of the carton simultaneously. These systems adjust automatically during each cycle of carton sealing to suit different size of cartons which can be fed at random. In the semi-automatic carton sealing system, the cartons are fed manually and, therefore, an operator is required to close the top flaps of the cartons and then feed them to apply the tape at the top and bottom of the carton simultaneously. Here, adjustment to different sizes of the cartons is done manually. The speed of the machine depends on the carton length. However there is a minimum gap to be maintained. With this minimum gap between two cartons, a speed of taping 20 cartons per minute can be achieved.

For more details write to: Novel Thermoplast Private Limited, 316 Tulsiani Chambers, Nariman Point, Bombay 400 021.
(Chemical Products Finder 6(4) 1987, 46)

51 Form, fill and seal machine

The Liq-Pak/Oil-Paq/Pow-Paq/Uni-Paq are fully automatic form, fill and seal machines, the working of which is controlled by solid-state electronic circuits which are located on the front side of the machine. The entire machine is encased in a stainless steel cabinet. A number of safety devices are provided for all systems. The packing quantity can be adjusted from 40 ml to 5 litres or 50 g to 5 kg depending upon the type of the machine and as per the requirement. The self-sufficient Liq-Paq packs milk, soya milk, lassi, arrack, etc. Pow-Paq packs any type of powders and granules like tea, coffee, spices, etc. and Oil-Paq packs edible oils, ghee, honey, vanaspati, and Uni-Paq packs uneven size foods like chocolate, wafers, noodles, etc. into strong, hygienic and attractive packs.

For more details write to: Exxon Packing Systems Pvt. Ltd., Al Karim Trade Centre, 9th Floor, Rani Gunj, Secunderabad, Andhra Pradesh, 500 003.

(Chemical Products Finder 6(7) 1988, 70)

52 Composite container

A range of packaging - composite containers and packages - has been developed by Compack to pack a variety of industrial and hosehold products - detergent, milk powder, special foods, tools and engineering parts, chemicals and pesticides and other similar products. There is a built-in barrier foil or plastic lining on the inside of the container and on the base aluminium or metal coated with corrosion resistant lacquer. The composites are fitted with reclosable plastic closures for easy stacakbility. An effective product design is featured on the convolute cans labels, foil or chromo/art paper printed in five/six colours with plastic varnish finish. The composites are expected to have a major impact on the fast food and confectionery packing.

For more details write to: Compack Private Limited, 76 Vishvas Colony, Alkapuri, Vadodara, Gujarat 390 005.

(Chemical Products Finder 6(4), 1987, 10)

53 Composite can

The composite can is a multilayered container relying largely on paper board for strength and plastic or foil materials to add barrier or product compatibility features. The cans are less likely to dent, buckle or split, if dropped. Many sizes are possible while still providing high protection and abuse resistance. Composite packaging systems can be integrated into existing lines, as it is adaptable to most processing equipment now in use. Continuing new developments in protective barriers and sterilization methods are expected to expand composites into new product categories. The composite cans are used abroad to pack frozen juice concentrates, coffee, refrigerated doughs, snack foods, health foods, malted foods, pet foods, and edible oils.

For more details write to: Spiral Pack (India) Ltd., 23/24 Radha Bazar Street, Calcutta 700 001

ANALYSIS

54 Composition analyser

Trebor-99 expands the light transmittance technique to measure many organic constituents; for example, protein, oil, moisture, fibre, sugar, and starch. This is accomplished by coupling Trebor's patented Source Array full wavelength capability, with a more powerful built-in microcomputer. The instrument is thus able to simultaneously measure three or more constituents in a single product. Its unique versatility allows the same unit to measure products as diverse as cheese, grain, meat, and breakfast cereals without the need for grinding or destroying the sample in any way. Features include: accurate even at high moistures and wide temperature range, eg, corn up to 45% moisture at any temperature from -40 F to 110 F; simple to use, no weighing, no temperature measurements, no conversion charts; direct digital readout in %; and fast, the result is displayed in 20 seconds.

For further information write to: Tara International 56/7 Botawala Building, Bomanji Master Lane, Opp. Kalbadevi Main PO, Bombay 400 002. *(Industrial Products Finder 1987 Annual 27)*

High performance ion chromatography (HPIC)

Dionex Ion Chromatography System is a uniqe HPIC system which is totally non-metallic in construction i.e. all the wetted surfaces are made up of special quality plastic which is resistant to all acids and alkalies and also to all organic solvents hence the system can be used for all ion chromatographic and HPIC applications without any problems such as corrosion, cross-contamination. The micro membrane suppressors available enable one to detect trace level ionic impurities down to ppb level of concentrations. The system can be used for detection of all anions (organic, inorganic), cations, organics and biological samples with the same case of operation and thus find its applications in the field of pollution monitoring, pharmaceuticals, biochemistry, power, paper and pulp, foods, chloralkali industries and all R&D laboratories. This instrument can also be a good alternative for atomic absorption spectrometer.

For more details write to: Materials Research Instruments, B-63, Mittal Court, Nariman Point, Bombay 400 021.

(Chemical Products Finder November 1987, 51)

All India final estimate of food grain production 1986-87 Production in '000 tons

State/Union Territories	Rice	Jowar	Bajra	Maize	Ragi	Small millets	Wheat	Barley
Andhra Pradesh	6743.4	896.0	199.2	442.8	189.6	127.1	6.9	-
Assam	2385.3	-	-	11.3	-	5.1	125.8	-
Bihar	6009.3	5.4	7.0	889.7	72.9	59.0	2863.1	63.2
Gujarat	451.0	245.1	1026.9	435.0	22.2	16.6	661.7	6.8
Haryana	1543.0	41.0	351.0	66.0	-	-	5055.0	100.0
Himachal Pradesh	105.6	-	-	563.0	4.2	5.6	492.0	34.5
Jammu & Kashmir	590.5	0.1	5.3	519.2	-	9.3	272.1	6.0
Karnataka	2173.4	1844.8	209.4	423.6	1469.8	112.3	148.8	-0
Kerala	1133.8	0.7	-	-	1.0	1.6	-	-
Madhya Pradesh	4271.8	1328.1	122.6	767.3	4.8	257.4	3865.0	148.6
Maharashtra	1751.1	3092.4	465.2	77.8	148.6	90.7	536.4	6.5
Manipur	242.5	-	-	16.4	-	-	-	-
Meghalaya	132.4	-	-	23.2	-	2.7	6.1	-
Nagaland	83.2	-	-	7.2	-	-	-	-
Orissa	4834.4	32.7	6.8	173.9	205.3	57.2	83.4	-
Punjab	6022.0	0.2	27.0	526.0	-	-	11150.0	80.0
Rajasthan	129.3	238.9	1014.9	647.0	-	1.5	3401.5	410.9
Sikkim	17.3	-	-	49.0	4.8	-	16.5	1.5
Tamil Nadu	5332.7	688.5	309.9	45.9	348.0	173.5	0.2	-
Tripura	383.2	-	-	-	-	-	4.3	-
Uttar Pradesh	7258.9	444.8	742.2	1501.9	179.1	179.5	16078.4	852.5
West Bengal	8462.9	0.1	-	230.7	12.0	6.2	682.6	16.6
Andaman & Nicobar Islands	27.5	-	-	-	-	-	-	-
Arunachal Pradesh	125.8	-	-	33.4	-	19.8	6.9	-
Dadra & Nagar Haveli	18.9	0.6	-	-	3.8	0.5	0.2	-
Delhi	7.8	6.3	2.7	0.1	-	-	119.6	1.3
Goa	71.1	-	-	-	0.9	-	-	-
Mizoram	45.8	-	-	6.5	-	-	-	-
Pondicherry	60.4	-	2.1	-	2.0	0.1	-	-
Daman & Diu	1.6	-	0.6	-	-	-	-	-
All India	60416.3	8865.7	4492.8	7456.0	2669.0	1125.7	45576.5	1728.4

(Directorate of Economics and Statistics, Ministry of Agriculture No. 1-1(iii)(86-87-AS(E)-ES, 4.1.88)

57 All India final estimate of Gram and Tur production, 1986-87.

(Production in '000 tonnes)

State/Union territories	Gram	Tur
Andhra Pradesh	20.3	80.1
Assam	1.7	7.2
Bihar	149.2	105.0
Gujarat	28.1	146.1
Haryana	413.0	40.4
Himachal Pradesh	2.6	-
Jammu & Kashmir	0.4	-
Karnataka	83.3	191.7
Kerala	-	0.2
Madhya Pradesh	1372.4	455.7
Maharashtra	129.4	372.4
Meghalaya	0.3	0.7
Orissa	28.9	93.1
Punjab	82.0	30.2
Rajasthan	760.8	3.5
Tamil Nadu	4.8	106.8
Tripura	0.2	0.2
Uttar Pradesh	1326.7	672.1
West Bengal	50.2	9.6
Dadra & Nagar Haveli	0.1	1.1
Delhi	0.9	0.2
All India	4455.3	2316.3

(Directorate of Economics & Statistics, Ministry of Agriculture, No.1-1(iii)/86-87-AS(E)-ES, 4.1.88)

58 Low ginger output will hit prices, exports

Dry ginger output during the 1987-88 season is expected to be much lower at about 5,000 tonnes as against a normal crop of 13,000 to 18,000 tonnes. With carry-over stock of nearly 5,000 tonnes from the previous season, the total availability during 1987-88 season is placed at

only 10,000 tonnes, according to sources here.

On account of the anticipated lower dry ginger crop this year, the price of the commodity has risen sharply to Rs.22 to 23 per kg and may go up to even Rs.25 in the near future. It had been fluctuating between Rs.15 and Rs.18 per kg a few months ago.

Dry ginger exports are also expected to be pegged lower at around 3,000 tonnes during the current season (4,000 tonnes last season). Three years ago, exports had peaked to 12,000 tonnes. Normally India exports about 6,000 tonnes annually and an equivalent quantity is consumed internally.

(The Economic Times 22 December 1987, 3)

PRODUCTION (INDUSTRIAL)

59 Salt production in India

Year	Production (lakh tonnes)
1947	19.30
1951	27.76
1956	33.18
1961	34.81
1966	45.22
1971	54.26
1976	40.76
1977	53.29
1978	66.94
1979	70.37
1980	80.07
1981	89.23
1982	73.08
1983	70.05
1984	76.53
1985	98.75
1986	101.16

Note: Data in this table is taken from the annual reports of the Salt Department.

(The Economic Times 25 February 1988, 3)

60 Area, production and yield of salt in different States: 1982 and 1986

State	Area under cultivation (lakh acres) 1982	1986	Production (Lakh tonnes) (lakh acres) 1982	1986	Average yield per hectare (tonnes) 1982	1986
Andhra Pradesh	0.18	0.20	3.87	3.97	21.4	20.1
Tamil Nadu	0.37	0.37	18.39	17.07	49.8	45.9
Maharashtra	0.25	0.27	4.37	3.85	17.5	14.1
Karnataka	0.03	0.03	0.23	0.24	8.8	9.4
Gujarat	1 17	1.16	37.51	66.01	32.1	56.9
Rajasthan	0.10	0.12	7.43	9.18	75.2	76.6
Total (including others)	2.19	2.25	73.08	101.15	33.3	45.0

(The Economic Times 25 February 1988, 3)

61 Production of salt by sectors 1982 and 1986 (Lakh tonnes)

SECTOR	1982	1986
(1) Public Sector	5.11 (7.0)	6.10 (6.0)
(2) Private sector	46.80 (64.0)	67.21 (66.4)
(3) Cooperative sector	7.58 (10.4)	7.85 (7.8)
(4) Non-licensed sector	13.59 (18.6)	19.99 (19.8)
TOTAL PRODUCTION	73.08 (100.0)	101.15 (100.0)

Note: Figures within brackets denote the percentage share to total production.

(The Economic Times 25 February 1988, 3)

62 Production of iodised salt (in lakh tonnes)

Sector	1983	1984	1985	1986
Public sector	2.04	2.08	1.83	1.67
Private sector	0.02	0.25	1.53	5.60
Total: iodised salt	2.06	2.35	3.36	7.27

(The Economic Times 25 February 1988, 3)

EXPORT

63 Marine items exports

Exports of marine products from India are expected to cross the annual target of Rs.470 crores during the current financial year (1987) according to the latest trends available.

During the period April-December, 1987 exports of marine items, comprising mainly of shrimps and prawns, increased both in terms of quantity and value of 65,906 tonnes valued at Rs.373.79 crores from 62.744 tonnes valued at Rs.339.86 crores in April-December 1986.

This was stated at a meeting convened here on Thursday by the Minister of State for Commerce, Mr.P.R. Dasmunshi, to review the progress of export efforts in the marine products sector.

In the context of the inadequate landings of shrimp and other items, Mr. Dasmunshi emphasised the need for a long-term perspective to strengthen fisheries production for exports.

(Financial Express 9 February 1988, 12)

64 Panel to study cashew output, export prospects

A committee under the Union Ministry of Agriculture, comprising representatives of the Cashew Export Promotion Council and other concerned organisations, will go into various aspects of cashew production and exports, including financial support to meet the growing demand within the country and abroad.

This committee will prepare a comprehensive paper within a month, according to a decision taken by commerce and finance minister Narayan Datt Tiwari, at a meeting held here on Wednesday.

It was felt that the annual plan outlay for cashew development would have to be increased to around Rs. five crores annually if India is to retain its primacy in the world market for cashew, according to a release issued by the commerce ministry on Wednesday.

Against this, the allocation for the entire Seventh plan is Rs. five crores, it was stated.

Since cashew is a substantial foreign exchange earner (Rs.334 crores in 1986-87) it was considered imperative to step up production through various ways, including improvements in productivity.

The commerce ministry is already considering a proposal to set up a cashew board to coordinate developmental activities.

Minister of state for commerce P.R. Dasmunshi said that the focus of development work should be an augmenting the yield rather than expanding the acreage.

The meeting also discussed issues pertaining to an increase in the production of spices in the country. Some of the spices are being imported at present.

(The Economic Times 4 March 1988, 3)

65 Cashew exports earnings up

Exports of cashew kernels from India during January to July, 1987 totalled 23,472 tonnes, an increase of 16 per cent over the exports of 20,208 tonnes in the corresponding period last year. The export earnings registered a 35.4 percent increase and amounted to Rs.2053.2 million. The unit export price during the review period averaged at Rs.87.47 per kg as compared to Rs.75.03 per kg last year.

(Economic & Commercial News 17(46), 1987, 5)

66 Export of iodised salt allowed

The commerce ministry has allowed to the export of iodised salt (used for human consumption) within a limited ceiling on "first-come, first-served basis".

A public notice issued by the chief controller of imports and exports on January 14 said that the export has been permitted "on a review of the position".

(The Economic Times 17 January 1988, 3)

67 Exports of spices from India during 1986-87

(Quantity: M.Tons; Value: '000Rs.)

Commodities	1986-87* Quantity	Value
Pepper	36,879.25	1,991,523.18
Cardamom Small	1,447.14	1,84,952.96
Cardamom Big	193.79	9,602.45
Dry Chillies	4,029.01	46,958.48
Dry Ginger	4,742.10	55,542.28
Turmeric	18,744.13	1,84,768.19
Curry Powder	2,574.61	39,090.26
Coriander Seed	1,079.86	12,664.97
Cumin seed	1,480.40	28,670.41
Celery Seed	2,365.29	23,194.84
Fennel Seed	784.73	10,929.31
Fenugreek Seed	2,784.39	13,512.36
Garlic	551.04	4,879.21
Nutmeg	-	-
Aniseed	-	-
Cassia	246.89	2,927.61
Mace	4.00	195.12
Tejpat	50.88	187.27
Misc. Spices	1,392.06	17,728.37
Oils of Spices	41.14	29,236.71
Oleoresins of Spices	395.61	1,18,217.84
Total	79,786.32	2,774,781.82

Source:Customs lists, provisional figures. Cardamoms: Cardamom Board
* Provisional figures, subject to revision.

68 Salt exports from India

Year	(Lakh tonnes) Quantity
1980	1.10
1981	2.29
1982	3.31
1983	4.87
1984	2.52
1985	4.47
1986	4.33

(The Economic Times 25 February 1988, 3)

IMPORT

69 Raw cashewnet

A quantity of 2,567 tonnes of raw cashewnuts valued Rs.41.8 million was imported into India during August 1987 as against 2,883 tonnes valued at Rs. 36.4 million imported in August 1986. The cumulative total of imports during January to August, 1987 was 32,844 tonnes valued Rs. 514.9 million as compared to only 27,238 tonnes valued Rs.359.5 million for the same period of the previous year. The unit import price during the current year was Rs.15,677 per m.t. as against Rs.13,198 per m.t. last year.
(Economic & Commercial News 18(1), 1988, 6)

70 15 insecticides under OGL

The Union government had allowed import of 15 varieties of insecticides, fungicides and weedicides under Open General Licence (OGL). But these can be imported only by the Indian Farmers' Fertilisers co-operative, Krishak Bharati Co-operative and state agro industries corporations for stock and sale, according to a public notice issued by the chief controller of imports and exports on March 1.

These items are: monocrotophos, methyl parathion, dimethoate, BHC malathion, endosulfan, phorate, dithane, zineb, thiram, 2, 4-D butachlor, benthiocarb and asoproturon.
(The Economic Times 3 March 1988, 1)

TRADE INFORMATION

71 Salient features of salt manufacture in India 1986.

Item	Category I (Licensees with licensed area above 100 acres)	Category II (Licensees with licensed area between 10 and 100 acres)	Category III (Licensees with licensed area below 10 acres)	Category IV (Non-licensed units)	Total
1.Number of licensees	468	683	2310	7117	-
2a.Licensed area (lakh acres)	3.70	0.26	0.41	-	4.37
3a.Actual worked (lakh acres)	1.58	0.19	0.20	0.28	2.25
b.Percent to total	70.3	8.4	8.9	12.4	100.0
4.Average size of actual area per licensee (acre)	337.6	27.8	8.7	3.9	-
5a.Production (lakh tonnes)	64.08	7.45	9.63	19.99	101.15
b.Percent to total	63.3	7.4	9.5	19.8	100.0
6.Averge yield per acre (in tonnes)	40.6	39.2	48.2	71.4	45.0

(The Economic Times 25 February 1988, 3)

72 Pattern of offtake of salt

(Lakh tonnes)

Year	Human consumption	Industrial use	Exports	Total
1983	35.72 (54.7)	24.42 (37.8)	4.87 (7.5)	64.56 (100.0)
1984	40.58 (56.9)	28. 17 (39.6)	2.52 (3.5)	71.27 (100.0)
1985	41.43 (54.7)	29.82 (39.4)	4.47 (5.9)	75.72 (100.0)
1986	42.52 (56.5)	28.52 (37.8)	4.33 (5.7)	75.73 (100.0)

Note: Figures within brackets denote the percent share to total.

(The Economic Times 25 February 1988, 3)

73 Supplies of iodised salt to various states: Quota and actual 1986

(000 tonnes)

States	Quota	Actual supply	% of actual to quota
1. Jammu & Kashmir	41.3	14.4	34.9
2. Himachal Pradesh	29.2	5.0	17.1
3. Uttar Pradesh	218.7	122.0	55.8
4. Bihar	237.0	165.1	69.7
5. West Bengal	65.3	65.9	100.9
6. Assam	166.1	41.5	25.0
7. Arunachal Pradesh	5.3	1.7	32.1
8. Manipur	12.7	11.8	92.9
9. Nagaland	6.7	3.8	56.7
10. Sikkim	3.6	3.5	97.2
11. Madhya Pradesh	114.7	71.5	62.3
12. Maharashtra	70.5	29.8	42.3

contd.

contd.

States	Quota	Actual supply	% of actual to quota
13. Haryana	9.7	3.9	40.2
14. Punjab	24.0	8.3	34.6
15. Chandigarh	3.1	1.8	58.1
16. Delhi	42.8	28.2	65.9
17. Gujarat	19.5	7.1	36.4
18. Mizoram	4.0	-	-
19. Defence ?	4.6	5.1	110.9
20. Andhra Pradesh	2.0	0.5	25.0
21. Rajasthan	-	0.6	-
22. Tamil Nadu	-	3.1	-
23. Kerala	17.7	2.7	15.3
24. Karnataka	-	1.0	-
25. Andaman & Nicobar	-	0.1	-
26. Meghalaya	12.0	-	-
27. Tripura	17.2	-	-
Indigenous 1986	1127.7	598.4	53.1

(The Economic Times 25 February 1988, 1)

74 Edible oils buffer in offing

A blueprint for building up a buffer stock of edible oils and oilseeds on the lines of wheat is expected to be finalised shortly.

Indicating this here on Wednesday, Mr. Sam Pitroda advisor to the Prime Minister on technology mission and Dr.P.V. Shenai, additional secretary in the Union Ministry of agriculture said the report of the working group set up to suggest detailed operational plans of the proposed buffer stock was being awaited. The working group has been specifically asked to support the size of the buffer stock, the methods of intervention for achieving stability in oil prices and the agency which could operate the buffer stock.

He said it was for the first time an integrated approach to oilseeds covering production marketing, distribution and prices was being attempted.

Dr.Shenai said it was possible that the National Dairy Development Board (NDDB) could be the agency which might be asked to operate the buffer stock for oilseeds and oil.

He added that while the working group has been asked to make recommendations, it was the aim of the government to "replicate" the system obtaining for buffer operations in regard to wheat. In other words, the agency handling buffer stock operations would release supplies into the market when prices tend to go up with a view to protecting the consumer and hold back supplies when prices show a declining trend so that the producer did not suffer.

Ultimately, a good price policy, which ensured remunerative price for producers alone could lead to stable situation in regard to availability of oil and oilseeds, Dr. Shenai said.
(The Economic Times 4 March 1988)

75 Expanding market for dehydrated food

Dehydrated food may shrink while it dries, but the market for dried food is expanding. Today dehydrated fruits can be eaten right out of a pack, while dried vegetables can be placed in water and heated before they are eaten. Consumers can now buy dried grain, eggs for breakfast, dried meat and poultry for dinner. And dried ingredients like fish paste are used in making food products. There is a tremendous amount of dehyd-

ted food on the market and it is not going to go out of style, says experts in food marketing.

The firm M/s Precision Drying System, New Jersey, has developed a new low-heat continuous-drying system for use in the food and pharmaceutical industries. Food and hot air are piped into the stainless steel drying machine from opposite ends. Inside, the food moves up and down continuously on a bed of spherical metal balls, which transfer heat to the food and thereby dry it. When dried, the food emerges as wall chunks or powder. Because the hot air is a relatively low 100 F, essential vitamins, minerals and flavour are not lost. According to the producer, the system matches the high quality of freeze dryers but is 50 percent less expensive. It has the ability to retain the integrity of substances and is still affordable.

The process is suitable for preserving cashew apples as the dehydration may enhance the shelf life. The dried apples can be further used as a raw material in food processing industries or as a dried fruit in bakeries etc. Professor P.M. Edassery, Petaline Flower Food Research Station, Palghat, has developed a simple process of drying the apples after slicing, under sun. It is tested that these dried slices can be stored under room temperature inclosed containers for one year or more. As the process is very simple and it can be done by even farmers themselves, this will being additional income to the farmers and will open new ways for utilization of cashew apples now being wasted.
(Cashew Bulletin 24(10), 1987, 13)

76 Plea to scrap excise duty on biscuits

The Federation of Biscuit Manufacturers of India has urged the Government to abolish excise duty on biscuits so that it could be made available at a much cheaper price.

Mr. S.P. Chauhan, President of the Federation told newsman here on Monday that the general belief that biscuits were the food of the rich was not true. A recent study conducted by the National Council of Applied Economic Research on "National market information survey of households" has revealed this.

The study had pointed out that 55 per cent of the biscuits manufactured in India were consumed in rural areas.

As much as 37 per cent of the total biscuits were consumed by those household whose monthly income was Rs.750.

Significantly, cakes and pastries which were consumed by over 85 per cent in the urban areas and were mostly bought by the upper strata did not attract any excise duty since it was mostly manufactured in the small-scale sector. In the process the Government was helping the rich at the cost of the poor, Mr. Chauhan added.
(Financial Express 20 January 1988, 4)

77 Cashew board mooted

The formation of a cashew board on the lines of the Rubber Board, to look after production, research and development of cashew, has been recommended by the steering committee of the Indian Cashew Development Council.
(The Economic Times 22 January 1988, 4)

78 Excise corks up soft drinks industry

The soft drinks in the organised sector with an investment of Rs.300 crores is working at 35 per cent of its installed capacity mainly because of the steep excise burden. It also faces competition from the unorganised sector which not only enjoys tax concessions but also succeeds in evading whatever little is levied upon it, according to sources close to the industry.

It is estimated that there are about 5,000 unorganised soft drink makers in the country who produce about 70 million to 80 million cases which is more than the production of the organised sector. As against this, in the organised sector there are only 150 soft drink companies in the large, medium and small sectors, the sources point out.

The already high excise burden was increased by 60 per cent, from 30 P per bottle to 50 P per bottle in the 1987 budget for flavoured drinks. Similarly, for soda, which accounts for half of the sales of soft drinks, the excise was raised by 100 per cent, from 15 P to 30 P per bottle. As a consequence, the market price for flavoured drinks was raised to Rs.2.75 to Rs.3 per bottle and for soda from Rs.1.50 to Rs.1.75 per bottle.

The consumer resistance at these high prices resulted in the negative growth rate for the industry. The soft drinks sector for several years

was showing growth rate of 10 per cent to 12 per cent per annum. But this healthy trend has now been reversed, according to the sources.

It is suggested that to nurse the industry back to health, the Government should slash duties to the pre-1987 budget levels and also restore Modvat facilities, which were abruptly discontinued after having been granted in the 1987 budget.

Out of the retail price of Rs. 3 per bottle now prevailing, manufacturers are getting only about Re. 1 per bottle. Apart from the heavy excise, there is also duty on crown corks and bottles. Similarly, there is excise duty on carbon dioxide gas and flavouring essences used in the production of soft drinks.

Besides, there is sales tax on soft drinks and beverages and aerated waters in every State which is paid by the organised sector only. The ST burden comes to 15 P to 20 P per bottle. Again, the organised sector is paying octroi which works out to four paise to five paise per bottle.

The total tax element constitutes nearly 80 per cent of the value realised by the manufacturers for flavoured drinks while in the case of soda the total tax element works out as high as ten per cent of the net ex-factory price of the manufacturer.

The sources point out higher tax burdens on the organised sector provide more incentives to the unorganised sector whose further expansion is bound to increase health hazards to an average consumer, the sources add.

(Financial Express 25 January 1988, 3

79 Panel for norms on alternate inputs for alcohol

An inter-Ministerial panel to draw guidelines for production of alcohol from non-molasses based raw material has been set up. Headed by the Secretary, Chemicals and Petrochemicals, Mr. H.K. Khan, the panel will look into the supply of various alternative raw materials such as tapioca, mahua flower, beetroot, spoiled wheat, spoiled rice, spoiled fruits and potato to manufacture alcohol.

The modalities for assessing quantities available in each State, which could be assumed as surplus for being allowed to be used for alcohol manufacture, will be determined by the panel. It will also look into the capacities to be allowed for alcohol manufacture from each raw

material without detriment to the interest of other users of these inputs.

(Chemical Products Finder November 1987, 95)

80 Alcohol from non-molasses States seek new units

The states have urged the Central government to allow setting up new capacities for manufacture of alcohol for potable purpose from raw materials other than molasses.

The non-conventional raw material identified at the meeting of state representatives convened on Wednesday by Mr.H.K.Khan, secretary chemical and petrochemicals were tapioca, mahuwa flower, beetroot, spoilt wheat, fruit, rice or grain and potato.

It was suggested that guidelines should specify the raw materials that can be used and these should also be mentioned in the licence or registration. Only those should be selected which are available in sufficient quantities or whose production is flexible to demand. Damaged wheat and rice should be allowed through recognised agencies.

The meeting felt that the technology to be adopted must permit use of different raw materials as alternative so that the licenced units did not get bogged down on account of being tied to a single raw material which might not be available in sufficient quantities of that point of time.

It was also suggested that licences should be given under the industrial (regulation and development) Act. It was felt that licensing should be allowed freely without much restrictions so that the market forces can play their part. This will also ensure better remuneration to agricultural and horticultural growers.

According to an official release, it was felt that an assessment may be made about the present gap in demand and supply of potable alcohol and quantitative limit may be placed on the new licences and registrations to be approved in the next three years.

(The Economic Times 25 December 1987, 8)

81 Research centre for energy

A research centre for energy management will soon be set up in the capital.

A committee has been set up under the chairmanship of Mr.K.L.Puri, former chairman of Bharat Heavy Electricals Ltd. (BHEL) by the Foundation for Organisational Research and Education(FORE) sponsors of the Research Centre.

Named as "Force" the Centre will promote energy management research studies and disseminate information on energy management through seminars and workshops.

(The Economic Times 7 March 1988, 8)

82 Per capita grain availability drops

The per capita availability of foodgrains has come down by 2.3 per cent in 1987, despite a heavy draw-down of cereal stocks, which ammounted to 8.7 million tonnes.

The latest official figures show that the per capita net availability during the year was 465.5 grams per day, consisting of 429.3 grams of cereals and 36.2 grams of pulses.

There has been a sharp decline in the availability of pulses by 13.6 per cent from 41.9 grams per day in 1986. In the case of cereals, the decline was 1.1 per cent from 434.2 grams per day in 1986. The overall foodgrains availability in 1986 was 476.1 grams per day per person.

(Deccan Herald 7 March 1988, 15)

83 Vegetable processing and packaging

Newell Vegetable Co-op Ltd. Alberta (Canada), is willing to cooperate with prospective entrepreneurs in developing countries to promote the transfer of its state-of the-art know how for the preparation, processing, quick-freezing and packaging of vegetables of all types.

(Business World 7(22), 1988, 65)

84 Export promotion for Indian products in America

Jaffe Export Promotion Service, P.O. Box No.438, Yonkers, New York 10705 (Telex 4930458) will be publishing from January 1988 a monthly Newsletter titled "Made in India" meant exclusively for promoting Indian products in the United States of America and Canada.

The Newsletter which will contain descriptive information about all kinds of consumer and industrial products from India, is meant primarily for circulation among wholesale importers and distributors of foreign products in America.

Manufacturers interested in testing their products in the Newsletter may write to Jaffe for editorial guidelines.

(Cashew Bulletin 24(10), 1987, 16)

85 New exim policy to boost spices export

A new import-export policy to be implemented during 1988-89 is being formulated by the Union government, minister of state for commerce Priya Ranjan Das Munshi said today, reports UNI.

Laying the foundation stone for a Rs.1.55 crore building of the Spices Board, Mr.Das Munshi said that the policy was intended to give a boost to exports.

Mr.Das Munshi said that there was need for a change in the methods of working of the Spices Board and also of other commoditity boards. The boards should act as agencies for collecting and disseminating information to all sections of the industry.

The Spices Board should collect information on global supply and demand and provide farmers information regarding the quality of the produce vis-a-vis the quality of produce from competing countries to enable them to improve the quality of the spices produced by them, he said.

Export contracts entered into prior to November 6 are to be exempted from payment of the new 3.5 per cent cess on pepper exports imposed on that date.

Disclosing this, Mr. Das Munshi, said modalities in this regard were being worked out by the law ministry.

Earlier, Prof. K.V.Thomas MP, who presided,, made a strong plea for withdrawal of the 3.5 per cent cess, which worked out at Rs.8000 per tonne.

(The Economic Times 1 January 1988, 5)

86 US curbs dampen pepper trade

The pepper trading community is concerned over the regulations imposed by the Federal Drug Administration (FDA) of the US on the import of black pepper from India.

Originally, FDA had clamped automatic detention on all black pepper consignments received from India. Later, however, it relented a little and stipulated that exporters who shipped five consecutive consignments without impurities would be free of this constraint.

Following this US regulation, there has been a sharp fall in the prices of black pepper in the domestic market. Exports to other countries also suffered a setback on this account.

The Spices Board, for its part, has initiated certain measures to improve the situation. It has sent out instructions to the officers and staff concerned to tighten inspecton procedures for shipment of black pepper. The services of the Export Inspection Agency has also been commissioned for this purpose.

The Board has taken steps to prevent price undercutting by exporters. It has asked the exporters not to export at prices below the minimum export price as agreed upon by . Pepper Community as its meeting held last year. Compulsory pre-shipment registration of pepper export contracts has also been introduced.

On the domestic front, the Spices Trading Corporation has increased purchases and the Cooperative Marketing Federation of Kerala has also entered the market more actively. Consequent on these measures, the price slide has been arrested to some extent. Improved buying from Europe and other countries has also beenreported.

Meanwhile, export of spices this year is likely to fall short of the figure achieved last year. It, however, is expected to exceed the target of Rs.260 crores fixed for the year. Exports till the end of February has been worth Rs.230 crores.

(Financial Express 22 March 1988, p 1)

87 Cardamom production and trade

The prolonged drought during the year has affected production of cardamom in the country and this in turn has contributed to the low-key activities on the spices export front as a whole. As against a production of 2900 tonnes of cardamom, the total volume of export from the current year's crop may not exceed 300 tonnes.

Besides, the domestic prices have been on the higher side giving an edge to Guatemala, the main rival in the international market, which is offering the commodity at lower prices.

The Spices Board's strategy has been to promote domestic consumption of cardamom to build a strong base or the industry. This is meant to encourage the industry to increase productivity and production and generate surpluses for exports at competitive prices. Domestic consumption this year is expected to be higher, somewhere in the region of 2500 tonnes.

(Financial Express 22 March 1988, 1)

FOOD REGULATION, QUALITY CONTROL AND HYGIENE

88 Tea can cause lead poisoning

The cup of tea that cheers can cause deadly lead poisoning. According to the main findings of a team of scientists at the Industrial Toxicological Research Centre (ITRC) in Lucknow, the amount of lead leaching out of tea leaves depends directly on the temperature of the water used to make the drink and its acidity level. The study team led by professor T.D. Seth, found that the danger to the drinker increases if tea leaves are kept brewing in decoctions at high temperatures since this facilitates greater leaching of lead.

(Deccan Herald 23 January 1988, 7)

89 Govt. okays irradiation of sea food, spices

The Centre has permitted the Atomic Energy Commission (AEC) to use irradiation for sterilising sea food and spices meant for export.

This was stated by Dr.M.R. Srinivasan, AEC Chairman, at a function organised by the Rotary Club here today. Irradiation would ensure the safety standards set against bacterial contamination by Western countries. This would also reduce export costs and save time as irradiation was hitherto being done at places like Amsterdam before the items reached their destination.

(Deccan Herald 24 February 1988, 9)

90 Recent FDA decisions

The Food and Drug Administration (FDA) has extended its import alert on soy drinks and other beverages touted as infant formula substitutes.

FDA's alert says it will automatically detain all soy-based drinks that are not registered as infant formulas if their labeling either directly or indirectly implies the product can be used as an infant formula. It also said that soy-type beverage labeling should include the statement: "This product is not to be used as an infant formula or as the sole source of nutrition."

Reports of nutritionally inadequate products promoted as infant formula should go to Curtis E. Coker Jr., Center for Food Safety and Applied Nutrition (HFF-314), FDA, 200 C St. SW, Washington, D.C. 20204, Details: Federal Register, July 8, 1987, pp. 25636-25637, and Food Chemical News, July 13, 1987, pp. 42-43.

In other food-related decisions, FDA has affirmed that beta-carotene is generally recognized as safe (GRAS) when used as a nutrient supplement and when used in dairy product analogs, fats and oils, and processed fruits and fruit juices. Details: Federal Register, July 6, pp. 25209-25211.

Likewise, enzyme-modified refined beef fat, enzyme-modified butterfat, and enzyme-modified steam-rendered chicken fat were affirmed as having GRAS status when used as flavouring agents and adjuvants. In addition the agency expanded the list of sources for the preparation of enzyme-modified milk powder to include reconstituted milk powder, whole milk, concentrated or condensed whole milk and evaporated milk. Milkfat now can be used in the preparation of enzyme-modified butterfat. Details: Federal Register, July 10, 1987, pp. 25974-25976.

(Journal of the American Oil Chemists Society 64(9), 1987, 1282,1287)

91 Barc unit monitoring food articles.

Samples of all kinds of food articles imported from Central Europe are kept in constant vigilance to test the radiation level at the variable energy cyclotron centre of the Bhabha Atomic Research Centre situated in the northern fringe of Bidhan Nagar (Salt Lake City).

This is being done since the time of the Chernobyl disaster in the USSR as there is a concern among the public that these articles may have been affected by radiation, according to Dr.Bikash Sinha, Director the centre.

Dr.Sinha says that this research is a continuous process and is being done here and at Trombay. "Very rarely but certainly in some cases the radiation level has been found to be more than that allowed by the world standard in this respect," he says adding, "that does not mean, however, that there is anything to be concerned about.

"The radiation level of the soil of different parts of India too varies For example, the radiation level of the soil of eastern India, on an average, is higher than that of the western region for many geophysical reasons, particularly mining. In the soil of Kerala, because of the large thorium content, the level of radiation tends to be higher but this has created absolutely no problem for centuries.

The centre, he says, has also analysed samples of tea produced in north India for any possible radioactivity since a number of countries importing tea from India require a certificate before receiving the consignment that it is free from radiation resulting from the nuclear accident at Chernobyl. The centre is extending this service to various tea companies. *(The Economic Times, 5 March 1988, 8)*

TRANSFER OF TECHNOLOGY AND NEW INDUSTRIES

92 Sakthi group plans soybean project with TIDCO

The Sakthi group of the south, with interests in tea, coffee, and textiles and a group turnover of Rs.200 crores, has now teamed up with the state-owned Tamil Nadu Industrial Development Corporation (TIDCO) to set up a Rs.21 crore soyabean processing plant.

The plant, with the capacity to process one lakh tonnes of soyabean a year, is scheduled to be commissioned in early 1989.

The Sakthi group will contribute Rs.2.04 crores towards the project, to be set up in Coimbatore district of Tamil Nadu while TIDCO will contribute Rs.2.12 crores. The financial institutions have sanctioned a loan of Rs.12.10 crores and the remaining Rs.4 crores will be raised from the public.

(Business India No. 251, 1987, 16)

93 Double cola bottling plant near Madurai

The Rs. three-crore double cola bottling plant, started under the auspices of the Falcons Beverages (India) Private Limited, capable of filling up 300 bottles per minute was inaugurated recently at Paravai, about eight km from here, by Mr. M. Arunachalam, Union Minister of state for Industries.

Mr. Arunachalam said the government was considering formulation of new policies for the development of backward areas by bringing latest technologies to the rural areas. He said there were 60 such units throughout the country manufacturing soft drinks. Though permission had been granted to the units to fill up as many as 3,750 million bottles, they were producing only 1,660 million bottles representing only 50 per cent of the capacity created.

In his welcome address, Mr. B.G. Ghosh, chairman, Falcons Beverages (India) Private Limited, said this project was conceived by non-resident Indians in 1984 and described the plant installed here as a very sophisticated one" having most modern water treatment plant and other processing facilities.

President of the Double Cola Manufacturing Co., V.C. Gopalakrishnan, said the Madurai unit was the fourth bottling plant put by Falcons Beverages (India) Private Limited. More than Rs. 20 crores had been invested by non-resident Indians in these plants, he said.

(The Economic Times 17 January 1988, 11)

94 Ginger oil plant in Assam

A Rs. 25 lakh ginger oil and powder plant will be set up in private

sector at Ghungoor, 10 km from Silchar, to produce six tonnes of oil and 60 tonnes of powder annually. Chimaya Industries, the company, will export bulk of its output and would process 600 tonnes of raw ginger in Mizoram and North Cachar. Financed by the Assam Financial Corporation, the plant will provide employment to about 100.
(Chemical Products Finder 6(4), 1987, 81)

95 Petrol from bagasse

Petrol will be manufactured from baggasse (juice extracted sugarcane) by a private sector company in Ludhiana.

Mr. Abey Oswal, Chairman and Managing Director of Oswal Agro Ltd., said that Petro Bross of Brazil would be supplying the technical know-how for this project. The petrol manufactured thus would be available at half the price of conventional petrol.

Explaining, Mr. Oswal said that the sugar unit of his group would be able to supply the requisite bagasse. The capacity of the mills would be increased from the present 1200 tonnes per day to 4000 tonnes.
(Financial Express 20 January 1988, 9)

PERSONALIA

-Nil-

STATEMENT ABOUT "FOOD DIGEST"

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I, B.L.Amla, Director, CFTRI, Mysore, hereby declare that the particulars given above are true to the best of my knowledge and belief.

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FOOD DIGEST

Vol.11 No.2

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National Information Centre for Food Science and Technology
Central Food Technological Research Institute,
Mysore — 570 013, India

CONTENTS

RAW MATERIALS

96 Vegetable round the year

A young scientist of the Institute of Agriculture Science, Banaras Hindu University here, has successfully transplanted a plant which provides vegetable round the year and has been suitably adapted to local soil and atmospheric conditions.

Mr.D.S. Tripathi told UNI that the plant once sown bears fruit for three consecutive years.

Fruits of the plant, which look like tomato in size and appearance, are slightly bitter in taste, though the bitterness disappears on cooking.

He said the seeds of the plant known as "Solanum macrocarpon" (LINN) were procured from Nigeria and grown with remarkable success after acclimatisation.

In northern Africa, the plant is grown in abundance for its edible leaves and fruits.

The plant's prolonged flowering period extends from February to the beginning of December but can continue further. On maturity, the colour of the fruit changes from deep green to yellow, finally turning brown, Mr. Tripathi added.

While fruits are maximum from March to November, it continues throughout the year.

Mr. Tripathi said the fleshy leaves could serve a leafy vegetable as it is rich in vitamin and proteins. He said efforts were on to use it as a substitute to the tomato.

Besides, its flowers could also be chewed or rubbed on the teeth and the branches used as t ooth brushes..

(Financial Express 21 March 1988, 6)

STORAGE AND INFESTATION CONTROL

97 Natural fruit preservation process

A revolutionary process from France, which claims to be a completely natural one, will soon ensure that all fruits and vegetables,with a high sugar content (prunes, carrot, bananas) can be preserved for

periods of two to six years without undergoing the slightest deterioration in their taste or appearance.

This French technique offers clear advantages over traditional dehydration methods. Now, on exposure to open air, preserved fruit can last up to six months. The degree of biological purity attained through the use of this method is extremely high, and what is more this new procedure is much less costly.

The new PHINE process eliminates the rehydration phase of the cycle. The fruit is exposed to varying temperatures which never exceed 75 C. Each step has been pre-determined after careful analysis of the product's sugar content and other components. The cycle is stopped when the residual degree of humidity reaches level of 35%. While the pH of fresh fruit is usually between 5.5 and 5.9, fruits treated by the PHINE process rarely surpass the level of 4. This is an important threshold, since yeast and moulds cannot develop at this level.

The principle behind the PHINE process is based on complex notion of organic chemistry in simple terms, the heat provides the energy necessary for an architectural reorganization of the sugar molecules of the fruit. The product is stabilized at a particular balanced level that can only be destroyed by temperatures lower than 20 C or greater than 72 C. Moreoever, bacteria undergo a sort of "cleaning" and desporulation. Enzyme chains are inactivated.
(Beverage & Food World Annual 15(1), 1988, 88,90)

98 Fruits and vegetables kept fresh with vitamin C compounds

Vitamin C derivatives and other compounds prevent browning of cut apples in laboratory tests up to 48 hours and may be alternatives to sulfites for keeping salad-bar-style fruits and vegetables fresh, Agricultural Research Service scientists report.

"We think further studies will show that these compounds prevent browning for at least several days under commercial conditions", says Kevin B. Hicks, leader of a research team at the Eastern Regional Research Center in Philadelphia, P A. "There is industry interest in working with us to test the new uses of these compounds".

Dipping apple slices in either of two classes of compounds closely related to vitamin C-ascorbic acid-2-phosphates and ascorbic

acid-6-fatty acid esters-was most effective and prevented browning for up to 48 hours, according to preliminary results of research done in cooperation with scientists at Kansas State University.

The compounds worked on Winesap and Red Delicious apples, Granny Smith apple juice, and patotoes. Further studies may be done with cauli-flower, mushrooms, lettuce, and other vegetables and fruits.

"We expect that these compounds will be safe and not affect taste", Hicks says, "but some will require Food and Drug Administration approval before use on food".

Some fresh fruits and vegetables begin to turn brown once they are cut, sliced, or peeled. "Exposure to air helps an enzyme, polyphenol oxidase, react with polyphenols natural chemicals inside these foods", says Gerald M. Sapers, a food technologists who developed the procedures to evaluate these compounds.

Sulfites were the most effective compounds for slowing down this reaction, Sapers says, but the FDA banned them last July for use on raw fruits and vegetables. "Ordinary vitamin C can be used but is effective for only a short time", he says. "The compounds we studied are far more effective than that".

Some of the compounds studied are already used in Japan for various foods, and one of them, ascorbyl palmitate, is used in the United States to preserve fats and oils. ARS is applying for a patent on their use as antibrowning agents.
(P.T.I. Science Service 7(5), 1988, 22-23)

99 New method to keep vegetables fresh

A combination of ozone, carbon dioxide and gamma rays can be ten times better as a preservative for vegetables and fruits than the traditional methods.

The Ozone-carbon dioxide combination, developed by scientists of the Institute of Chemical Physics of the U.S.S.R. Academy of Sciences, disinfects the storages and retards the ageing process of vegetables.

While studying the ageing mechanism of potatoes, it was noticed that doses of gamma radiation which are safe for human beings eliminate nearly all centres of infection in tubers and prevent their sprouting.

Laboratory tests of the new method have proved its efficiency, 96% of potatoes stay nutrient and tasty for 12 months.
(Beverage & Food World Annual 15(1), 1988, 88)

100 Preservative for long-term grain storage

The P-7 Grain Preservative is said to be uniquely effective in preserving grains for long periods of time. Even used on grains with up to 28 per cent moisture, it inhibits the growth of moulds and fungi that cause dangerous aflatoxin and mycotoxin. It also prevents mill and dust fly, and increases throughput.

For further information write to: Force V. Inc., 5015 Sharp Street, Dallas, Texas 75247 U.S.A.
(Industrial Products Finder 16(8), 1988, 199)

FOOD ADDITIVES

Nil

PROCESSES

101 Apple snack

As a result of a revolutionary new food processing technique, a new natural snack product, Apple Chips, is being introduced to the Pacific Northwest and is expected to stimulate the local area economy. Apple Chips is manufactured by M.C. Snack, Inc., a division of Mitsubishi Corporation of Japan.

Apple Chips has been one of Japan's fastest growing food products over the past several years. This introduction is Mitsubishi's first venture into the snack food industry.

Apple Chips is establishing its own very special niche in the market place. It is not jumping on the current fruit snack bandwagon where the fruit snack is sold either as a soft snack or as a hard chip. Rather it will appeal to both the snackers who crave the texture of a potato chip and to the consumer who seeks a more nutritious and wholesome choice.

Apple Chips resemble potato chips in texture. However, it is the manufacturing process that is unique. The production of the chip entails a vacuum cooking process done at a low temperature. A non-cholesterol vegetable oil is used. No salt or preservatives are added. Each bag of chips contains the equivalent of two apples.

Each 2.5 ounce bag of Apple Chips will retail for $1.49 and will be positioned in the regular snack departments of major supermarkets in Washington and Oregon.
(Food Production/Management December 1987, 22)

102 Soft drink from cardamom

A new use has been found for the Mysore variety of cardamom grown in Karnataka, namely in the manufacture of a soft drink with the flavour and taste of Coca Cola.

The new drink developed by Mr. R.J.H. Pannel, a British food consultant and authority on flavours who has undertaken a variety of research and development programmes for the Spices Board of the country. The programmes taken up by the Board with financial and technical assistance of the International Trade Centre, Geneva, are to diversify the uses of cardamom.

Mr. Pannel told an "exposition on the end uses of cardamom" organised by the Spices Board here today that Mysore Cardamom could replace cassia and cinnamon used in Coca Cola. The oil extract from Mysore cardamom could also be used in the manufacture of carbonated gwaha which had the potential to replace the combined decoctions of coffee and cardamom popular in Saudi Arabia. The carbonated drink suited the hot climate of Saudi Arabia and also the taste of the younger generation there.

Mr. Pannel noted that Saudi Arabia and other parts of the Middle East were still the best markets for Indian cardamom. The Scandinavian countries of Sweden, Denmark and Finland and also northern West Germany, where cardamom was used in bakery products, were also a potential market for Indian cardamom, especially the Malabar variety.

Mr. Pannel told the meeting that the Malabar variety was more suitable than the Mysore variety for use in biscuits, Danish Pastry, high-boiled sweets and chewing gum. The Mysore cardamom oil was particularly suitable for carbonated drinks and toffees. The availability of the two different types of cardamom had placed India in a unique position in the world market.

The expert stressed the need for India to export cardamom oil and not raw cardamom. The country also had to give attention to removing the bacteria present in raw cardamom. Though gas treatment of cardamom was in practice till recently, it was not being accepted now by the importers. Even gamma ray radiation was not acceptable in many countries, including his own Britain. Only the Netherlands allowed the import of gamma ray-treated food products. The liquid carbon dioxide method was the latest in the extraction of cardamom oil.

Mr. Pannel added that Mysore cardamom was being used by the perfumery industry also. Even the Malabar variety might be suitable for that industry.

Mr. Devakaran said though the Government of India had cleared the irradiation of spices for export and onions, the importing countries were not favour of it.

(The Hindu 26 May 1988, 4)

103 Clear juice from apricots

Clear fruit juice is rarely made from apricots, but USDA's Agricultural Research Service Scientists have a new way to do it that could increase the fruit's use in beverages and foods.

Among food processors, the clear apricot juice should be easier to use than thick, cloudy nectar when added to soft drinks, fruit drinks, and products such as frozen juice bars, says Charles C. Huxsoll.

Huxsoll, and colleagues Keng C. Ng and Marcus R. Hart, adapted food-processing techniques - relying on enzymes and ceramic filters - to eliminate the apricot pulp and produce a liquid that isn't cloudy.

Until now, there was no practical or economic way to produce a clear apricot juice.

Huxsoll says the new process is "probably the most simple and least expensive yet devised to produce a clear apricot juice, as opposed to a thick nectar".

Juice is extracted from pulpy concentrate by using a special blend of different commercially available enzymes, known as macerating enzymes. Very small amounts of these natural chemicals quickly break down the concentrate into liquid and some pulp residue. Passing this

mixture through a porous ceramic filter separates the clear juice from the leftover pulp ingredients.

Enzymes have long been used in food processing, but some of those needed for the juice product have only recently become available at a reasonable cost. The ceramic filters are a new development during the past few years. Because of its natural sugar-acid balance, the juice is probably best-suited as an ingredient, he says.
(PTI Science Service 7(10), 1988, 18-19)

BYPRODUCTS AND WASTE UTILISATION

104 Fuel from agro-waste

The Indian Institute of Technology, New Delhi, has developed a process for the conversion of agricultural waste into a quite cheap and useful alternative source of energy.

The process is based on conversion of biomass like paddy husk and groundnut shell waste materials of low calorific value into highly efficient sources of energy called briqueted fuel.

The cost of one kilogram of the fuel, which gives about 5,500 kilo calories of heat energy is expected to be less than Rs.1.50.

Briqueted fuel, an ideal alternative to firewood, leco, coal,etc.
(The Hindu 23 March 1988, 24)

PROCESSED PRODUCTS

Nil

EQUIPMENT AND MACHINERY

105 Foil and cap sealing machines

Plastopack manufactures foil and cap sealing machines suitable for sealing the mouth of the containers filled with a variety of items. The containers can be HDPE, LDPE, PP, glass, etc. The lidding material can be inner plugs of HDPE, LDPE, PP or aluminium foil or coated paper. The machines are simple and easy to operate. The standard models can seal containers having mouth diameter up to 3". Machines are

also tailor-made to suit specific requirements. Adjustments for accommodating different sizes of containers and controls for temperature of sealing various materials are also provided.

For more details write to: Plastopack 2149 L Block, 7th Street, 12th Main Road, West Anna Nagar, Madras 600 040.
(Chemical Products Finder 6(12), 1988, 55)

106 Coconut dehusker

Central Plantation Crops Research Institute has developed a hand operated coconut dehusker with a capacity to dehusk 150 nuts/hr. The overall dimension of the machine is 680 mm x 275 mm x 1980 mm weighing 50 kg. It mainly consists of a telescopic levers tool holder, blade and springs and a platform. The piercing blades when come in contact with the hard shell of the coconut placed vertically on the platform expand in horizontal plane. Design of upper blades is such that it automatically gives twist to the husk for its easier detachment. Husked nut is removed and the loosened husk is then peeled off manually. The cost of the equipment is Rs.1,000/-.

For further information contact: Central Plantation Crop Research Institute, Kasargod, Kerala State.
(Rural Technology Journal 4(4), 1988, 29-30)

107 Mechanical chipper for tapioca

The keeping quality of tapioca is very poor in that discolouration and deterioration occur within a period of one week after harvest. One method of improving the shelf life of the tuber is to store it in the form of dried chips. At present the tuber is sliced manually which is higly time consuming and inefficient.

Therefore, a vertical feed type motorised tapioca chipping machine has been developed. It consists mainly of a feed hopper with guides, chipping disc with knives, chips outlet and a 0.5 HP single phase electric motor. The feed hopper is provided with vertical guides made of pipes of diameter 25 to 80 mm for 100 mm height to faci-

litate the feeding of tubers of varying diameters. Through these guides the tubers reach the chipping knives mounted on the chipping disc, rotating at 300 rpm. The capacity of this unit is 270 kg/hour. It costs around Rs.2000.
(TNAU Newsletter 17(11), 1988, 2)

108 Cold seal adhesives

National Adhesives, UK, are the manufacturers of adhesives for industry. Through their research and development they are able to introduce products that in some cases can revolutionise the production process. In the flexible packaging industry one of these important developments has been the introduction of cold seal adhesives. The range of Koldlok cold seal adhesives have broad applications and are ideal for the packaging of dry, aqueous and fatty foods as well as many products in the medical field. Koldlok cold seal adhesives form an instantaneous bond when packaging substrates coated with their natural rubber films are forced together pressure sealing the package contents. This can speed up on-line packaging by as much as 100% when compared with conventional heat transmission techniques.

For more details write to: Asma Agencies, 7 Raikar Bhavan, 2nd Floor, Sector 17, Vashi, New Bombay 400 705.
(Chemical Products Finder 6(12), 1988, 57)

109 Continuous rice puffing machine

Puffed rice is widely consumed in our country, especially in the villages. Considered to be the poor man's diet, it is a cheap and ready-to-eat food. It is liked for its colour, flavour, crispness and taste.

Sand roasting

Puffed rice is traditionally prepared by sand roasting of preconditioned rice. The process is tedious and time consuming. The maximum output attainable by this method is only about 2.5 kg/hr. Being sand roasted, the sieved puffed rice contains some traces of sand which makes it uncomfortable to eat and is injurious to health. In spite of its shortcomings, the traditional method has survived since ages, and no alternative/technology is yet available.

The rice puffing machine.

Some research has been done to modify the conventional process with a view to increase its puffing capacity and improve its overall efficiency.

A simple rice puffing machine based on the principle of hot fluidized bed has been developed. Preconditioned rice is fed in a continuous flow to a vertical column of hot air bed. The air velocity is so maintained as to keep the rice grains under suspension. Once the rice is puffed it travels upward due to its low density and is collected through a cyclone separator. To save energy the hot air from the cyclone separator is recirculated. The operation is fully automatic.

The hot air can be obtained by means of electric heaters, gas burners or an oven fueled by agriculture waste. The electric blower can be replaced by a manually operated blower. The technology is simple, easy to operate and gives puffed rice fully free of impurities.

Comparing the energy required for puffing, the new process has been found to use 50% less energy than the traditional one.

The present laboratory model has a capacity of 25 kg/hr. However, it can be scaled up for higher capacities according to the requirements of the industry.

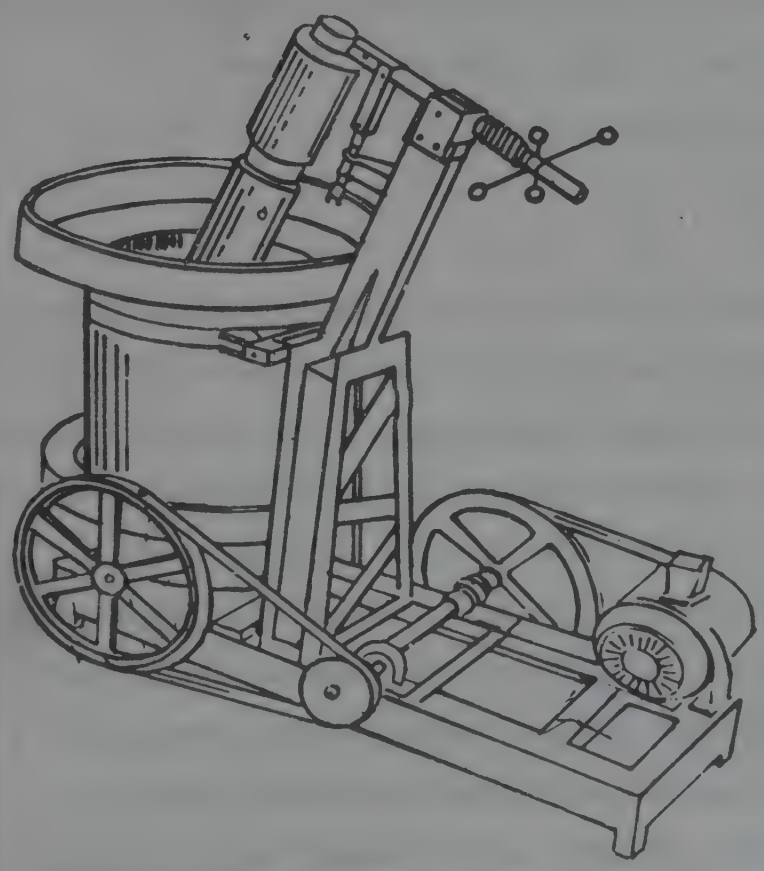
The new technology offers scope for opening an industry both at home and cottage scale levels. Even a large industry can be opened using this machine.

Laboratory studies are still underway to optimize the design parameters of the machine and to make it more economical.

For details write to: P.R. Chandrasekhar, Post Harvest Technology Centre, Indian Institute of Technology, Kharagpur 721 302.
(Invention Intelligence January 1988, 35-36)

110 Portable power ghani

The traditional ghani, used for oil extraction from seeds, consists of a simple wooden or stone mortar with its pestle driven by bullocks. The oil extraction by these traditional ghanis became uneconomical in the seventies due to high investment on bullocks, higher operating cost and low efficiency. In order to rescue this rural industry, the Khadi & Village Industries Commission (KVIC) mechanized the system by replacing bullocks with electric motors and a drive



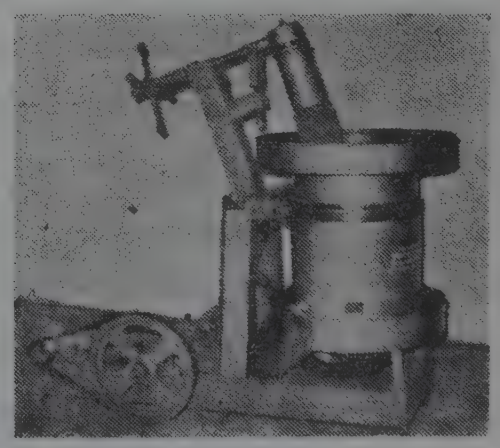


Fig. 2. The portable power ghani. The housing instead of the pestle is made to rotate, which simplifies the design and operation of the machine, besides improving its efficiency.

mechanism. Such a ghani is referred to as the Power Ghani.

The introduction of the power ghani did not cause displacement of labour and at the same time the quality of the oil was also retained, since the extraction process was not changed.

The portable power ghani has some special features: (i) It does not require a foundation and so can be easily erected anywhere. (ii) It is very compact, occupying only 1.5 x 0.75 m floor space. (iii) The whole ghani can be assembled in four hours at the site, unlike the overhead drive power ghani which requires several days. (iv) The hazard of being hit with moving pestle is eliminated and so even semi-skilled artisans can be employed. (v) Since the drive system is at floor level, the vibrations in the structure are negligible compared to the overhead drive. This eliminates the chances of misalignment caused by heavy vibrations and improves the life of machine parts. (vi) The oil extraction efficiency increases by about 2%. (vii) Any maintenance work, like changing of belts or lubrication, can easily be done at the level. (viii) Operating and maintenance costs are low.

The machine weighs about 545 kg.

A special feature of the portable power ghani is that seeds like groundnut, mustard, sunflower and coconut can be easily crushed.

For details write to: Mr. V.D. Venugopal, Managing Partner, Vivek Engineers, 20 Bye-pass Road, Vellore 632 004.
(Invention Intelligence January 1988. 33-34)

111 Chocolate moulding filler

Depositing caramel and other soft centres into chocolate mouldings has been made easier by a machine from Britain. The "one-shot depositor" from Lamdec performs the functions of several machines (saving space and energy), and is fully programmable (producing different products easily and quickly). It also offers very low product wastage and greater hygiene, it is said. The system employs concentric nozzles, the outer depositing the chocolate while the inner simultaneously deposits the filling. High precision computer control ensures improved product consistency. The system can be tailored to suit a variety of production requirements and is adaptable for all moulding plants.

For more details write to: Lamdec, The Torrs, Torrs Close, Redditch, Worcestershire B97 4JR, U.K.
(Chemical Products Finder March 1988, 87)

112 Chemical pumps

Raj Chemical Pumps, made of all polypropylene/stainless steel 304/316, are available in sizes from 6 to 100 mm, capacity 6 to 800 LPM, and head 3 to 55 metres. These are suitable for food industry surface treatment and chemical industry. The incorporation of mechanical seal/gland packing makes the pumps suitable for transfer of corrosive liquids, filters, and other high pressure requirements.

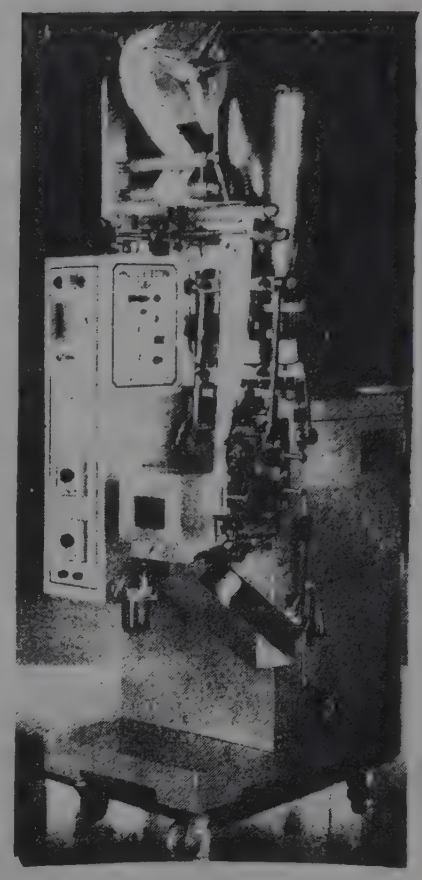
For more details write to: Raj Chemical Pumps, 2/16 Makani Industrial Estate, B.P. Road, Bhayander (East), Dist Thane, Maharashtra.
(Chemical Products Finder March 1988, 95)

113 Infrared heating ovens

Inava Instruments International has introduced modular heating ovens using infrared heating technology for various types of heating applications. Heating systems offered are of patented designs. Object temperatures upto 1,000 C can be achieved within a very short period. A number of heating elements have a temperature resistant, white reflecting layer on its outer side, which is said to save more than 50% of energy. The main advantages of these modular ovens are speed, simplicity, flexibility, waste reduction, zero start-up or shut-down time, fully programmed heating cycle, ease of control, product visibility, cleanliness, controlled atmosphere, safety and economy of space. Heat flux up to 222 kW/m^2 and in special design, ovens up to 600 kW/m^2 are offered by the company. Modular heating oven is suitable for drying and sterilising crockery in hotels, de-hydrating fruits and vegetables, baking and warming foods, drying of cake icing, plastic forming and curing, preheating plastic before moulding, etc. The company can supply standard ovens, portable ovens, as well as tailor-made systems to cater to specific requirements. Conversion of electrical ovens to infrared heating ovens is also undertaken.

For further information write to: Inava Instruments International, 94 Ratnajyoti Industrial Estate, Irla Lane, Vile Parle (West), Bombay 400 056.
(Industrial Products Finder March 1988, 23)

114 Automatic filling/packing machine



Jyi Maw Industry Co. Ltd., Taiwan, manufactures Automatic Filling/Packing Machine designed through 100% application of high electronic technique. It has special functions such as cartridge system, oil-less system and one-touch transfer system. The machine is of compact design and can use cheap single unit film. It can automatically process filling and packing in desired sizes from a reel of film (1,000 m/reel). It can be operated with automatic balance, counter and automatic feeding system. Packing materials can be single unit film of polyethylene, polypropylene, sholex or highgex. Capacity of packing can be 40 per minute with three sides heat sealing. The minimum and maximum packing size is 100(W) x 50 (L) mm, and 150 (W) x 240 (L) mm, respectively. It can pack liquid, solid, grain, powder, capsules, fertilizers, any food product, medicines, etc. This machine can be imported under OGL.

For further information write to: B.M. Singh & Son, 1 Crooked Lane, Calcutta 700 069.

(Industrial Products Finder March 1988, 24)

115 Industrial drying oven

Yorco Air Drying Oven is used for baking breads and biscuits. It is of double walled construction on a heavy angle iron frame. Inner and outer chambers are made of thick mild steel. Inner chamber is coated with aluminium paint and outer is finished with grey hammertone. The 75-mm gap between the walls is well insulated with glass-wool. Temperature is controlled by capillary thermostat from 50 C to 250 C $\pm$5 C. A heavy duty blower is provided to circulate air inside the chamber. Control panel is fitted on one side with an On/Off switch, indicator lamps, and temperature control knob dial thermometer. Adjustable ventilation is provided on top of the roof. The oven is supplied com-

plete with cord and plug to work on 220 V, single phase or 440 V 3 phase AC supply.

For further information write to: York Scientific Industries, Yorco Chambers, 3A Tak Wadi, Kalbadevi Road, Bombay 400 002.
(Industrial Products Finder March 1988, 39)

116 Processing plant for chemical/food & pharmaceutical industries

The ESCO-Labor processing plant is an economical, labour saving production plant. It is available in two sizes, having 3 or 10 litre useful volume. The combination of a rotor and stator, a scraper stirrer system and vacuum in one and the same air-tight and sterile working vessel, makes this the first compact system of this scale. This combination ensures intense wet grinding of active ingredients and additives in an undissolved form, homogenising emulsifying and deaeration. It also reduces production time, and ensures a clean working area so that the personnel are not exposed to toxic or caustic material in the air. In this processing plant, all products of liquid, creamy or pasty consistency can be made. The finished product is absolutely homogeneous, looks perfect, is deaerated and ready for filling. The ESCO-Labor processing plants have been designed with hygienic and bacteriological demands on modern production machines in mind allowing easy, quick and thorough cleaning. All the parts of the machines are easily accessible or removable. There are no recesses, cracks or holes, in which product residue could become trapped. Closed hollow chambers, which come into contact with the product, such as the working vessel, can be sterilised by usual methods. Uses in food industry are for: mayonnaise, fruit concentration, sauces, desserts, soups, mustard, etc.

For further information write to: E Schweizer & Co., Stiftsgasschen 16, CH 4125 Riehen, Switzerland.
(Industrial Products Finder March 1988, 46)

117 Powder filling machine

Food & Pharma Specialities offers a powder filling machine manufactured by PPM Albro Division of Portals Engg Ltd, U.K. The filling cycle of the machine starts with the lifting of the container against the filling nozzle whereafter the air is drawn out by vacuum and the powder flows into container from the hopper. After the filling level

is achieved, the vacuum is nullified. Absence of any moving parts in the filling mechanism and sanitary construction make the machine ideal for milk powder, coffee, spices, powdered soups, instant beverages and pharmaceutical powders. This filling machine is available in semi-automatic and fully automatic models from low to very high speed versions.

For further information write to: Food & Pharma Specialists 22-D, Nizamuddin East, New Delhi 110 013.
(Industrial Products Finder March 1988, 193)

118 Pouch making machine

The Pouch Maker from Flexible Packers is designed to produce empty pouches from flexible laminated materials. Two models are available: the PM-1 (for centre and bottom seal), and PM-2 (for three-side seal). Both are fully automatic convertors of flexible laminates into pouches. The machines are pneumatically operated and come with a built-in photo registration unit. The use of pneumatics has been so employed as to obtain a superior seal along with a serrated cut making it easy to tear open the pouch. The machine's dimensions are 48" (W) x 36" (H) x 144" (L), and the weight is 800 kg. Maximum input reel diameter is 20". Minimum draw is 2.5". Maximum draw is 16". Minimum width is 2". Maximum width is 8". The folder is adjustable. The electric eye is reflective type. These pouch making machines are particularly suited to bakery and food industries.

For further information write to: Flexible Packers, 64, Koregoan Park, Pune, Maharashtra 411 001.
(Industrial Products Finder March 1988, 182)

119 Steam boiler

Energy Machine has developed highly efficient and safe, fully-automatic steam boilers - "Ecotherm" "Ecotherm" is fully-automatic water tube, oil-fired, once through packaged type steam boiler. It is fitted with highly efficient, adjustable high pressure solid injection burner which ensures high combustion efficiency. The heat is liberated from combustion of oil and evaporation takes place to provide 99% dry and saturated steam. The unit finds applications in industries such as

chemical, food, rubber, paper board, plastic, pharmaceutical, textile, fertilizer and pesticide.

For more details write to: Energy Machine, C1,B/423 II Phase, GIDC Estate, Vithal Udyognagar, Gujarat 388 121.
(Chemical Products Finder 6(11), 1988, 97)

120 Tray driers

Indian Equipment Corporation manufactures Tray Driers used in pharmaceutical, chemical, dyes, food and other process industries, and in sericulture, drying of grapes, fish, etc. Standard driers are available in capacities of 12, 24, 48, 96 and 192 trays of the size 32" x 16" x 1.25" or 32" x 16" x 4", suitable for temperature to 300 C or higher. Temperature control is by a solid state electronic controller with presetting arrangement. Electric or steam heating arrangement can be provided.

For further information write to: Indian Equipment Corporation, Plot 102, Street 13, MIDC, Andheri (E), Bombay 400 093.
(Industrial Products Findor 16(7), 1988, 28)

121 Finned water coolers

Thermotech Industries manufactures finned water coolers, for industrial use up to 500 TR capacity. These systems make use of finned tubes. Fins are air-cooled by natural convection or forced convection with the help of fans. Advantage of this system is that it does not depend on the evaporative system of cooling like in cooling towers. This solves the problem of metal corrosion which is a usual phenomenon due to increased moisture content when the cooling towers are installed indoor. This unit can be installed inside the factory avoiding the long pipelines to take the cooling system to the top of building or outdoor. Thermotech finned water coolers are ideal to be used along with pharmaceutical, food and other process industries.

For more details write to: Thermotech Industries, 13 Vishal Industrial Estate, Village Road, Bhandup, Bombay 400 078.
(Chemical Products Finder 6(11), 1988, 84)

122 A "thinking" slicer for food shops

After several years of research and development, an Austrian firm, Kuchler Electronics, has come out with a "thinking" slicer for culinary purposes.

The SAM-ALPHA 8 slicing and stacking machine makes use of microprocessor technology. After cutting a given foodstuff (meat, sausage, cheese, etc.), it automatically lays out the slices. A mere touch of the sensor buttons with their optical light displays is enough to programme the exact amount and shape. The machine can thus be used to create highly decorative platters of cold food which comply with the most stringent hygiene regulations because they do not, at any stage, involve contact with human hands.

The device electronically ascertains the diameter of the material to be cut and can thus place each slice exactly in the desired position. It can be programmed to arrange the slices in piles, in diamond shapes, in vertical or horizontal rows or in a circular pattern to fit onto a round plate. Moreover, each arrangement pattern can be stored in the device's memory and hence repeated whenever needed. The company also offers several peripheral devices like built-in cellophane strip dispenser.

(Asia-Pacific Tech Monitor January-February 1988, 6)

123 Rice flour noodles machine

The rice flour noodle machine has a capacity of 200 kg/hr with a overall size of 8000 x 600 x 1800 mm. The system consists of electric heating streamer, evaporating conveyor, cooling conveyor, and noodle cutter. Cutters are available in different sizes (widths). The auxiliaries include wet grinder, container pump and switchboard. The noodles produced are flat with 1 mm thickness and 5 to 10 mm width. The machine is already commercialised in China, Thailand, Malaysia, Indonesia and Canada. It is offered by China National Machinery Import and Export Corporation (CMEC), Peoples Republic of China.

(Asia-Pacific Tech Monitor January-February, 1988, 26)

124 Automatic soft drink dispenser

Dynamic Control Systems offers an automatic soft drink dispenser which works on 230 V AC single phase and is meant for dispensing fla-

voured aerated chilled drinks. Three types of concentrated flavoured syrups and drinking water are stored in separate stainless steel tanks in the machine. There is also a CO_2 gas cylinder inside the machine. The stored water is chilled by refrigeration system. When the desired flavour is selected with a selector switch and a pushbutton is pressed, the internal mechanism is actuated to deliver the selected flavour and soda water simultaneously but separately. The delivery action automatically stops when the preset quantity of drink is dispensed. The machine is suitable for use in industrial and office canteens.

For further information write to: Dynamic Control Systems, DCS Block No.11, 43/2 Erandwana Industrial Estate, Behind Rescon Co., Karve Road, Pune, Maharashtra 411 004.
(Industrial Products Finder 16(8), 1988, 111)

125 Food extruders

Hytek Machine Tools manufactures a range of single screw food extruders to produce various shapes of pre-cooked, expanded fast food items from rice, corn, semolina, soya, starches and pulses. The present manufacturing range covers four extruders of capacities ranging from 25 to 50 kg per hour. The machines are robustly built, simple to operate and easy to maintain. The company has already installed more than 35 units throughout India and abroad.
(For further information write to: Hytek Machine Tools, E-19 Sector IX, NOIDA, Uttar Pradesh 201 301.
(Industrial Products Finder 16(8), 1988, 137)

126 Biscuit stacking machine

Russo Electronic Industries manufactures biscuit stacking machine. It uses a precision control circuit that helps in cutting and stacking of biscuits in the required size and shape. Model Soni-I performs stacking of biscuits only. Model Soni-II performs stacking and cooling. The machine can be used in single as well as three phase.

For further information write to: Russo Electronic Inudstries, Subhash Nagar, Kalyan-Ambarnath Road, Ulhasnagar, Dist. Thane, Maharashtra 421 003.
(Industrial Products Finder 16(8), 1988, 170)

PACKAGING

127 Corrugated box units in crisis

With 67 per cent of the capacity lying idle. the corrugated box manufacturing units are facing a serious crisis.

Of the 1,000 units in the country, 40 per cent are sick and are on the verge of closure, according to Mr. Satish Kapur, President of the Federation of Corrugated Box Manufacturers of India. Higher prices coupled with poor quality of kraft paper, the main raw material of the industry are the main problems being faced by the industry today. Recently, paper mills had increased the price of kraft paper, upsetting the production schedule of many small units. The industry consumes about 4.4 lakh tonnes of kraft paper per annum.

Moreover, Mr. Kapur said, the quality of the paper supplied by mills is very poor compared to the international standards. He urged the Government to allow kraft paper import at a reduced rate of duty. The present import duty is as high as 180 per cent.

The Federation has also demanded that the Government allow import of certain sophisticated machinery under OGL at 40 per cent duty, against 85 per cent levied at present. This would enable the industry to modernise its equipment and to manufacture quality products. Although the industry is included in the SSI sector, the Government had recently issued a licence to the Himachal Pradesh Government to set up a large scale unit to produce two crores of boxes per annum. The Jammu and Kashmir and Uttar Pradesh Governments had also received licences to set up similar projects.

The Federation has, therefore, urged the Government to cancel these licences for the very survival of the small units. The industry, having an annual turnover of Rs.450 crores provides protection to five per cent of the gross national product, Mr. Kapur said.
(Financial Express 3 May 1988, 3)

128 Flexible packaging for longer shelf life

The shelf life of foodstuffs and drinks sensitive to oxygen and/or moisture can be extended by packaging in a range of high-barrier films and laminates available from Britain. Camvac films and laminates

can be tailored precisely to the properties demanded by many applications. Multi-ply composites of a wide range of metallized films, including polyesters, polypropylenes, polyethylenes and nylons can be supplied in widths up to 2.2 metres. Oxygen permeabilities start from as low as 0.2 ml per m^2 per day, and moisture vapour transmission rates can be close to zero, offering a barrier comparable to aluminium foil but with good resistance to pinholing when flexed to be applied. The laminates have a bright metallic appearance receptive to print, allowing attractive and eyecatching graphics to be applied. Triple laminates, offering the highest barrier, can be supplied with different thickness and seal characteristics. They are particularly suitable for bag-in-a-box wines and offer a shelf life of up to 12 months. Bilaminates are ideal for vacuum-packing applications, pouches or box liners. A cost-effective alternative to foils or rigid containers, they include materials with a variety of sealing characteristics, all offering high strength and flex resistance combined with good barrier properties. Camvac films and laminates are produced in what is believed to be Europe's most advanced plant for metallizing plastics material. A 2.2 metre width capability covers barrier materials from the smallest snack-food product up to liners for 1 tonne-capacity intermediate bulk containers for food and drink.

For further information write to: Camvac Ltd., Burrell Way, Thetford, Norfolk IP24 3QY, U.K.

(Industrial Products Finder 16(8), 1988, 203)

129 Aseptic packaging systems

Central India Packaging offers Bowater Aseptic Liquid Packaging machines and bags. Aseptic packaging is suitable for low and high acid products eliminating processing contamination and allowing transportation and storage at ambient temperatures. Various types of products such as juices, ketchups, pastes and concentrates of fruits and vegetables, milk and milk products, can be packed and stored at ambient temperatures for long time. Pack sizes range from 3 to 250 litres all of which can be filled on the same machine with minor adjustments. Various sizes of filling machines are available

for packing 1,000 to 6,000 litres per hour. Fully automatic machines with higher filling capacities are also available. Various types of models to operate on a unit basis or part of an integrated automatic filling line can be supplied. Standard sterilants can be used for cleaning the machines. The aseptic bags come in sizes from 3 to 250 litres with strong laminates to withstand handling and storage. The bags come with various types of closures including press tap for easy dispensing of liquid products.

For further information write to: Central India Packaging Co Pvt. Ltd., 3-6-140/2 Liberty Road, Himayathnagar, Hyderabad, Andhra Pradesh 500 029.

(Industrial Products Finder 16(9), 1988, 188)

130 Packaging for ghee

Ghee during storage undergoes chemical changes. The net effect of these chemical changes is oxidative deterioration and is catalysed by air, light, temperature, humidity, metals, etc. Thus, packaging material, used has an important role in the storage of ghee. In general commercial ghee is packaged in tin containers. Tin packaging has certain limitations; a large capital outlay for the equipment and the additional distribution costs involved in carrying the dead weight of the tin containers. The dairy industry has shifted towards polyethylene packages because of low cost and easy handling.

Ghee samples were packaged in tin and polyethylene packages and stored at 37 C for 195 days. Samples were analysed every other week for free fatty acids (FFA), peroxide value (PV) total carbonyl content (TCC), moisture content (MC) and flavour score (FS). Ghee packaged in tin had higher average FFA, PV TCCC and MC as compared to ghee packaged in polyethylene. In contrast to results of various chemical parameters, ghee in tin packages had a higher average level of FS as compared to ghee packaged in polyethylene. Differences in FS became almost negligible at the end of the storage period. Though a strong recommendation cannot be made, yet keeping in view the results of chemical parameters, negligible flavour differences at the end of the storage period, involvement of low cost and easy handling, polyethylene packages should be preferred to tin packages for storage of ghee.

(Indian Food Packer 42(2), 1988, 94-95)

COMMERCIAL INTELLIGENCE

PRODUCTION (RAW MATERIALS)

131 Papaya production in India

The information on the production and area of Papaya in different States recently published by the National Horticulture Board, Gurgaon (Feb. 1988 publication) is given below:

State	Area in hect.	Production in tonnes
Arunachal Pradesh (1985-86)	198	540
Assam (1985-86)	4499	72,833
Gujarat (1986-87)	33300	1,65,000
Karnataka (85-86)	5578	2,23,120
Kerala (85-86)	9780	43,268
Madhya Pradesh	985	8,865
Manipur (1986-87)	700	8,400
Meghalaya (85-86)	363	3,425
Mizoram (1986-87)	67	820
Nagaland (1985-86)	2	2.2
Orissa (1986-87)	5782	54,929
Rajasthan (1985-86)	288	2,717
W. Bengal (1986-87)	140	3,500
Andaman Nicobar (1986-87)	190	950

(Courtesy: All India Food Preserver's Association, New Delhi-16) Circular No.30/88 dated 12.5.88.)

132 Spices production

Name of spice	Area (hect)	Production (M.T.)
Cardamom (Small)	1,00,000	3800
Cardamom (Large)	25,685	3500
Pepper	1,23,240	34340
Chilly	8,77,800	708900
Ginger	53,330	130030
Turmeric	104	300000
Cumin	1,51,469	78500
Coriander	3,29,899	134433
Fennel	17433	20042
Fennel/Greek	30079	30696
Saffron	2,000	5500 kg

(The Economic Times 19 May 1988, III)

133 Milk industry performs well despite drought

Milk production has increased by four per cent despite drought and floods in some parts of the country last year.

Infact the increase was more than the target set for the year 1987-88.

The target set for 1987-88 was 45.9 million tonnes as against an achievement of 46.1 million tonnes.

The country today has 252 dairy plants with a combined output of about 122,00,000 litres of milk per day. The production of milk powder during 1987 is estimated to have reached 1,00,000 tonnes.

(Economic and Commercial News 23 April 1988, 9-10)

134 All India spices production, 1985-1986

(Production in tonnes)

State/ Union Territory	Black pepper	Chillies	Ginger	Turmeric	Cori-ander	Carda-mom	Garlic
Andhra Pradesh	-	3,09,400	5,522	1,32,700	20,700	-	811
Assam	-	6,281	-	5,591	-	-	-
Bihar	-	10,770	1,018	7,095	2,179	-	4,994
Gujarat	-	9,400	350	-	-	-	15,800
Haryana	-	12,100	20	-	113	-	8,444
Himachal Pradesh	-	163	747	-	-	-	-
Jammu & Kashmir	-	409	-	-	-	-	124
Karnataka	692	40,598	3,311	14,247	1,114	1,586	2,267
Kerala	29,165	915	40,152	5,365	-	2,803	-
Madhya Pradesh	-	11,063	3,526	339	13,426	-	41,185
Maharashtra	-	71,500	578	12,748	-	-	25,000
Manipur	-	2,500	180	-	-	-	-
Meghalay	-	1,057	28,560	1,800	-	-	-
Nagaland	-	2,200	210	-	-	-	600
Orissa	-	76,510	14,654	31,575	10,305	-	66,385
Punjab	-	7,800	-	-	-	-	3,338
Rajasthan	-	30,650	1,482	345	36,706	-	3,257
Sikkim	-	-	9,400	-	-	3,840	-
Tamilnadu	534	58,359	1,536	1,01,061	19,857	616	840
Tripura	-	677	1,167	1,556	-	-	-
Uttar Pradesh	-	22,997	6,277	859	2,188	-	12,642
West Bengal	-	30,578	6,821	8,030	-	580	-
Arunachal Pradesh	-	678	3,594	255	-	-	-
Delhi	-	198	-	-	-	-	-
Mizoram	-	1,779	5,000	-	-	-	-
Pondicherry	6	111	-	-	-	-	-
ALL INDIA	30.397	7,08,693	1,34,105	3,23,566	1,06,588	9,425	1,87,187

(Agricultural Situation in India, October 1987, 649-665)

135 All India Production of Onion, 1985-1986

	(Production in tonnes)
Andhra Pradesh	1,25,800
Assam	11,180
Bihar	1,19,510
Gujarat	4,77,700
Haryana	43,296
Himachal Pradesh	1,693
Jammu & Kashmir	830
Karnataka	1,96,620
Kerala	2,709
Madhya Pradesh	1,42,949
Maharashtra	6,43,000
Nagaland	400
Orissa	3,82,090
Punjab	27,600
Rajasthan	47,779
Tamil Nadu	2,32,105
Tripura	195
Uttar Pradesh	4,13,024
Delhi	1,300
Pondicherry	85
ALL INDIA	28,69,863

(*Agricultural Situation in India October 1987, 666-669*)

PRODUCTION (Industrial)

136 Installed capacity and production

Product	Unit	1985-86 No. of units	1985-86 Installed capacity	1985-86 Production	1986-87 No. of units	1986-87 Installed capacity	1986-87 Production
Biscuits	Lakh T	33	1.48	1.35	33	1.48	1.28
Confectionery	Lakh T	22	0.36	0.23	22	0.36	0.26
Bread	Lakh T	21	1.22	1.20	21	1.68	1.22
Pearl barley	000 T	4	6.59	0.81	4	6.59	1.10
Corn flakes	000 T	3	2.55	0.45	3	2.55	0.56
Oat flakes	000 T	1	0.02	-	1	0.02	-
Macaroni,vermicilli/ noodles etc.	000 T	5	33.40	8.71	5	33.40	9.30
Malt extracts	000 T	5	11.30	6.66	5	11.30	7.00
Guargum	000 T	9	46.00	27.53	9	46.00	28.80
Weaning food	000 T	3	10.30	9.37	3	10.30	9.50
High protein food	000 T	9	13.61	6.12	9	13.61	7.20
Cocoa butter substitute	000 T	1	3.00	0.17	1	3.00	0.23
Egg powder	000 T	1	0.30	0.06	1	2.67	0.07
Starch	Lakh T	11	2.67	1.34	11	1.06	1.42
Glucose	Lakh T	12	1.06	0.50	12	8.50	0.52
Chocolates	000 T	6	8.50	7.26	6	1.50	7.60
Drinking chocolates	000 T	3	1.50	0.27	3	0.64	0.36
Cocoa powder	000 T	5	0.60	0.23	5	3283	0.24
Soft drinks	M.bottles	60	3283	1850	60	1.32	1860
Beer	Lakh Kl.	32	1.32	1.99	32	-	1.99

(*Financial Express 26 April 1988, 12*)

137 Sugar production

According to the Indian Sugar Mills Association, the sugar production during the second fortnight of April, 1988 (i.e. 16.4.88 to 30.4.88)

was about 5.40 lakh tonnes as against 4.29 lakh tonnes during the same fortnight last year. This brings the total output during the season 1987-88 to 82.43 lakh tonnes against 77.44 lakh tonnes during the corresponding period last year.

The closing stock of sugar as on 30.4.88 was 55.12 lakh tonnes, comprising of 54.06 lakh tonnes indigenous sugar and 1.06 lakh tonnes of imported sugar in all, inclusive of stocks held at the ports and the FCI godowns at different consuming centres. The corresponding figures of stock at the end of April, last season was 51.47 lakh tonnes comprising of 50.81 lakh tonnes indigenous sugar and 0.66 lakh tonnes imported sugar.

(Indian Sugar Mills Association, Press Release, 3 June 1988)

EXPORT

138 India's exports of processed foods

Item	Quantity (tonnes)	Value in Rs.lakhs	Quantity (tonnes)	Value in Rs.lakhs
Fruit juices	8814	533	5000	300
Other canned and bottled fruits	30320	3401	50000	4500
Canned vegetables	971	172	1800	200
Dehydrated vegetables	1128	167	1800	200
Pickles and chutneys	5700	620	9000	900
Fresh meat	9378	2297	15000	3700
Frozen meat	36064	4584	45000	5700
Canned meat	1376	321	-	500
Poultry products	-	54	-	100
Animal casings	-	232	-	300
Mushrooms	68	1013	-	1200

(Financial Express 26 April 1988, 12)

139 Record earnings from spice export

Earning from exports of spices created a new record at Rs.286.35 crores during 1987-88 as against Rs. 281.99 crores in 1986-87. The previous record earning from spices was Rs.282.52 crores in 1985-86.

Pepper contributed largely to the increase in export during 1987-88 with an export of 39,340 tonnes valued at Rs. 230.12 crores as against 37,083 tonnes valued at Rs. 200.33 crores in 1986-87. The earning from pepper was more than 80 per cent of the total export earnings from all spices during 1987-88.
(Financial Express 1 May 1988, 7)

140 Spices productivity and export

Name of spice	Productivity (kg/ha)	Export quantity (in M.T.)
Pepper	280	37,500
Cardamom	52.5	3,272
Large cardamom	147.0	383
Chillies	800-1050	1,241
Turmeric	2402.0	8,561
Ginger	not known	6,816
Coriander	407.0	1,863
Cumin	518.0	1,061
Celery	not known	2,625
Fennel	1,149.0	1,324
Fenugreek	not known	2,394
Nutmeg & Mace	-do-	2.1
Clove	-do-	216 kgs
Cinnamon	-do-	516 kgs
Cassia	-do-	233
Tejpat	-do-	not known
Garlic	-do-	2,619
Saffron	-do-	103 kgs
Vanila	-do-	not known
Curry leaf	-do-	0.5
All Spice	-do-	not known
Aniseed	-do-	0.5
Mint	-do-	not known

contd.

140 contd.

Name of spice	Productivity (kg/ha)	Export quantity (in M.T.)
Mustard	not known	120 kgs
Parsley	-do-	not known
Pomegranate seed	-do-	-do-
Kokam	-do-	-do-
Bishops seed	-do-	245
Dill seed	-do-	534

(The Economic Times 19 May 1988, III)

141 Export pepper inspection by agencies

Export inspection agencies have also been authorised by the commerce ministry to carry out pre-shipment inspection of black pepper for export.

So far, the agricultural marketing adviser to the Union government was the only competent authority to certify the quality of black pepper which is subject to compulsory inspection and testing.

The commerce ministry issued the notification authorising the export agencies to carry out inspection through a notification issued on March 7, according to a press release issued by the ministry here today.

The exporters, thus, can approach any of the inspection agencies for getting the consignments of black pepper inspected prior to exports.

The notification, which is effective from March 7, explains that the export of black pepper is not permitted unless it conforms to the standard specifications applicable to it and is accompanied by a certificate of inspection issued by the Union agricultural marketing adviser or by any of the export inspection agencies established under the Export (Quality Control and Inspection) Act.

Black pepper" shall mean the black pepper either powdered or whole produced in India".

The export inspection agencies now cover a wide range of goods like engineering, food and agricultural products, chemicals and allied

products, footwear and footwear components, mica, jute and jute products, fish and fishery products, coir and coir products and carpets. None of these commodities can be exported unless the consignments conform to the specifications recognised by the government under the Act and certified to this effect by any of the agencies.
(The Economic Times 17 March 1988, 4)

142 US lifts ban on Indian black pepper

The US has conditionally lifted its ban on Indian black pepper.

A Spices Board press release here said the Federal Drug Administration (FDA) of the US has agreed to lift "automatic detection" on Indian black pepper provided export consignments were accompanied by a statement from the Export Inspection Council certifying that they conform to FDA standards.

The FDA took the decision to lift the automatic detention, effective since July 24, 1987, following discussions between FDA Director, Mr. Richard Ronk, and the Union Commerce Joint Secretary, Mr. M.R. Sivaraman, in Washington recently.
(Financial Express 23 April 1988, 1)

143 Marine items export target

Export target of Rs.470 crores has been fixed for marine products for the year 1987-88.

An official release issued by the Marine Products Export Development Authority here said that the exports of marine products, effected from India during the first six months of the current financial year had risen to 45319 tonnes valued at Rs. 243.6 crores. This was the highest on record for the first half of any year, the release said.

The export growth achieved during the current year worked out to 13 per cent in terms of quantity and 14 per cent in terms of value. The average unit value realisation of exports also marginally increased.

The items which contributed to the export increase were frozen shrimp, frozen cuttle fish, frozen lobster tails, frozen squids and fresh or frozen fish.

Japan, the US and western Europe were the major markets for the Indian marine products. Japan continued to be the principal market accounting for an export earning of Rs. 152.8 crores or 18668 tonnes in

quantity terms. During the six-month period exports to Japan marginally increased both in terms of quantity and value. Exports to the US also registered a marginal increase Rs.40.5 crores (7865).

In regard to western Europe while quantum of exports increased to 9077 tonnes from 8725 tonnes, the export earnings marginally declined to Rs.31.8 crores from Rs. 31.9 crores exported during the corresponding six-month period last year.
(Seafood Export Journal 20(2), 1988, 41-42)

144 Soft drink exports

Year	Quantity lakh litres	Earnings Rs lakh
1981-82	0.9	6.0
1982-83	10.8	86.7
1983-84	19.9	158.3

(The Economic Times 12 May 1988, III)

145 Procedures for exports simplified

Exporters would no longer have to submit copies of export contracts and orders as part of the procedural formalities. Mr. R.L. Mishra, Chief controller of imports and exports announced here today.

Henceforth, only a certificate from a chartered accountant will have to be submitted along with the application, he said in his address at a workshop on export and import-policy organised by the Federation of Indian Export Organisations (FIEO).
(The Economic Times 12 May 1988, 1)

146 Gum karaya exports fall

Exports of gum karaya has registered a sharp fall during the last two years following canalisation and exporters are hard put to fulfil their export coutracts, reports UNI.

According to reports, the exports of gum karaya which was around 350 tonnes per month have scaled down drastically to less than 150 tonnes per month after canalisation.

Citing the reasons for the sharp decline, traders said as per the conditions imposed by the exports trade control order, exports of gum karaya are now permitted by Nafed only against purchases made from state government corporation and authorised co-operative societies.

However, there are only three such recognised socieites in the country, Andhra Pradesh, Maharashtra and Gujarat of which only one society supplies the majority of the gum. Together they are unable to meet the supply of more than 2,000 tonnes of gum karaya against an annual export demand of 4,000 tonnes.

Traders said that while the principle objective of canalising exports to safeguard the welfare of tribal community, yet when it was put into practise canalisation has adversely affected their welfare.

Although the government has made provisions in the notification that in event state corporations/cooperative societies are not in a position to meet export requirement, Nafed should obtain prior permission of the ministry of welfare to seek supplies from alternate sources for the purpose of export. Yet this procedure is quite combersome and time-consuming, traders said.

Moreover, traders said, there are several complaints from exporters and foreign buyers about the poor qualities of products supplied by co-operative societies due to negligence and as a result India is losing the international market and buyers are exploring and seeking supplies from African countries.

Short supplies of gum karaya to the processing units have resulted in unemployment and nearly 50 per cent of the workers of these processing units have been laid-off since many exports have forced to shut down their factories.

The gum merchants' association has recently requested the chief controller of imports and exports that in the larger interest of export promotion and to assist the organised and unorganised tribals, canalisation should be removed. Till such time the stipulation of purchase of gum karaya for exports from state government corporation/ authorised co-operative socieities may be withdrawn immediately as these would enable tribals to collect and supply gum karaya for exports.

The association also requested that to safeguard the interest of tribals, possibilities may be examined to fix the 'floor prices" in consultation with gum merchants' association, Nafed, tribals soci-

eties, etc. as has been done in some of the agricultural commodities.

If the above suggestions are accepted, the trade is confident that exports of gum karaya could be restored to 4000 tonnes within the next couple of years and exports earnings from gum karaya to shoot up to Rs. 15 crores, traders added.

(The Economic Times 16 May 1988, 10)

147 Cashew kernels export up

India exported 38,598 tonnes of cashew kernels valued at Rs. 340.29 crores in 1987 registering a 14 per cent growth in export earnings over the previous year.

The average unit price during the period under review was Rs.88.16 per kg as against Rs. 78.32 per kg in 1986, according to the Cashew Export Promotion Council.

The US (12,942 tonnes), the Netherlands (7,028 tonnes) and the Soviet Union (3,099 tonnes) were the major buyers.

The country imported 45,515 tonnes of raw cashew in 1987 as against 44,210 tonnes in the previous year.

(Financial Express 6 April 1988, 8)

148 Tea export outlook

A substantial reduction in the volume of tea exports by the year 2000, because of rising domestic demand and prices, is indicated in a recent study by the Indian Tea Association (ITA). If India is to remain a major force in the global tea market, corrective policy measures and suitable incentives, as well as concessions, are necessary.

For supporting the current export level of around 200 million kgs by the turn of the century, Indian tea output would have to exceed 1,000 million kgs, which would help maintain domestic price stability as well as internal demand which is rising at an annual rate of almost 4 per cent.

As against these projected figures, the study notes that tea production based on current trends is likely to be only 820 million kgs by the year 2000, while the domestic demand would be 780 million kgs, thus leaving only 40 million kgs for exports.

The Indian Tea Board has set an output target of 1,200 million kgs by the end of the century, but the study feels that this is beyond

achievement as the output shows an annual increase of only 12 million kgs. Besides, if the producer gets better prices in the home market, he has little incentive to export tea.

The ITA study wants the government to sanction adequate concessions to the tea industry for maintaining the current export levels by augmenting production and keeping enough stocks to contain the domestic price rise.

It notes that Kenya, Argentina, Sri Lanka, Indonesia and Malawi have weak domestic demand for tea and could export cheaply, depressing world prices.

(The Economic Times (16 April 1988, 3)

149 High prices of S. Indian teas deter importers

Importers from the U.S., Canada, the U.K., Australia and Europe have complained of high prices for South India teas.

Participating in different panel discussions at the South India tea convention held by UPASI here on Monday, the delegates from these countries advised the Indian exporters to advertise intensively in their markets.

The representatives from the US said that there is good scope for the export of South Indian teas to their country because North Indian teas are not suitable for the preparation of iced tea which had a large chunk of their market. They also advised the exporters to attach importance to the health aspects and supply of decaffeinated teas.

They pointed out that at a recent convention in East Africa, Kenya has announced its plan to double its tea production. This will lead to a glut and consequently a price crash, Mr. Brian Macauley of Canada said that the imports into his country from South India was nil in 1987. The increased price of Indian teas compared to Indonesia and Sri Lanka is the reason. He, however, said that there is scope for the export of tea bags.

Mr. Peter Gridley of the U.K. observed that his country now bought more teas from Brazil, Dr. R.D. Lal of Tata Tea said that South India will introduce instant tea of high quality to suit the sophisticated Western market.

Mr. R.K. Tripathy, Chairman, Tea Board, pointed out that India is a signatory to the FAO stipulations on quality and assured that there

can be no compromise on the quality of Indian exports. He requested the importers to pay prices which matched the quality.

Mr. R.N. Deogun, who chaired the session, said that the convention will recommend that India should go out to market its teas as there is room for further exports.

(Financial Express 26 March 1988, 8)

150 Export of oilseeds extractions and cakes

Year	Production of extraction MT	Ceiling fixed by the Govt. for the exports MT	Actual quantity extractions exported MT	FOB Value Rs. Crore	% of export compared to ceiling
Deoiled rice bran (rice bran extraction)					
1985-86	13,30,000	5,40,000	2,97,650	15.52	55
1986-87	14,50,000	5,40,000	3,80,100	29.07	70
1987-88 (Est)	16,00,000	5,40,000	3,50,000	27.05	65
Deoiled groundnut cake extraction					
1985-86	5,50,000 (Est)	4,00,000	1,64,021	28.25	41
1986-87	6,50,000 (Est)	4,00,000	2,86,753	53.73	72
1987-88(Est)	6,00,000 (Est)	4,00,000	2,65,000	65.00	66
Cottonseed extraction					
1985-86	59,000	6,00,000	35,908	4.05	6
1986-87	1,09,000	6,00,000	53,083	6.81	9
1987-88(Est)	79,000	6,00,000	22,747	4.52	4
Cottonseed expeller cake					
1985-86	18,38,000	25,000	12,448	1.13	50
1986-87	19,35,000	25,000	70	0.01	0.28
1987-88(Est)	16,47,000	25,000	Nil	-	-

(The Economics Times 16th April 1988, 3)

151 SC ruling on frog legs export

Frozen frog legs are the same as fresh frog legs and their export is entitled to the benefit of Section 5(3) of the Central Sales Tax Act, 1956, the Supreme Court has ruled.

"The process of freezing them is only to avoid decomposition and this process does not bring any material change in them", the Court added.

The ruling was handed down by a division bench comprising Mr. Justice Sabyasachi Mukherji, and Mr. Justice S. Ranganathan, while upholding a judgement of Sales Tax Appellate Tribunal, which was confirmed by the Kerala High Court. The judges, thereby dismissed in appeal by the Deputy Commissioner of Sales Tax (Law), Board of Revenue (Taxes), Ernakulam, challengingthe verdict of the High Court.

The assesse respondent, Shiphy International, Alleppy, had purchased fresh frog legs and exported them frozen after removing the skin, washing and removing dirt. The assessee claimed that it was entitled to the benefit of Section 5(3) of the Act.

The tribunal found that what was purchased by the assessee was fresh frog legs and after freezing it for the purpose of avoiding decomposition and decay, it was exported. It was, therefore, held by the Tribunal that what was purchased as fresh frog legs was exported by the assessee.

It was contended on behalf of the State that what was purchased was fresh frog legs and the same was not exported as it was frozen first before exporting it.

The tribunal held that only frozen frog legs were exported. Therefore, it followed that what was purchased and exported was one and the same commodity. The frozen frog legs did not undergo any material change in character. The Tribunal, therefore, held that the assessee was entitled to the benefit of Section 5(3) of the Act. The High Court accepted the view. Thus the appeal before the Supreme Court.

The Supreme Court said every processing does not bring about a change in the character and identity of a commodity. The nature and extent of processing may vary from one case to another, the court said.
(Financial Express 21 March 1988, 5)

152 Export incentives against bank certified invoice allowed

An official press note of the CCI & E, New Delhi, revealed that the office of the Chief Controller of Imports and Exports has agreed to waive the requirement of submitting customs authenticated invoices when exporters were furnishing invoices duly authenticated or verified by the nationalised banks and exporters.

Exporters will be allowed export incentives on the basis of bank certified invoices instead of customs authenticated invoices.

The Federation of Indian Export Organisations had brought to the attention of the Chief Controller, the difficulties in submitted copies of invoices duly authenticated by the customs for claiming export incentives like replenishment licences and the like. Many exporters had said that copies of the invoices were not received back by them and created problems.

(Seafood Export Journal 20(2), 1988, 41)

153 Ginger exports hit all-time low

Ginger exports this year have fallen to an all-time low, along with the overall crop of ginger. Exports in 1987-88 have been a mere 1,500 tonnes so far, compared to 4,000 tonnes during 1987 and 7,500 tonnes during 1986. Traders feel the likelihood of further export-orders this year are small.

The main reason for the progressive fall in dry ginger export is that stocks have been piling up at Jeddah, India's main market, after yemen began tightening its controls on ginger-smuggling in 1985. Yemen formerly accounted for about 60 per cent of India's exports to Jeddah, traders say.

Dry ginger exports last year were 3,000 tonnes to Saudi Arabia and 1,000 tonnes to Europe. This year, Europe has the lion's share of India's meagre exports.

The ginger crop of 1987-88, at 25,000 tonnes, was the lowest ever recorded, owing to large scale diversion of land in Kerala and Karnataka to pepper cultivation. Consequently, the production of the low priced 'Shimoga dry ginger has been negligible. The production of dry ginger this year was a scant, 5,500 tonnes, but even for this there has been little demand owing to the 5,000 tonnes stock carried

over from the previous crop.

The price of fresh ginger has risen since last year but dry ginger has failed to keep pace. Consequently, most of the crop was sold fresh in the domestic market. Even so, traders expect a large carry-over of dry ginger this year also owing to low demand.

The prices of dry ginger are presently Rs.22 per kg in Bombay and Rs.20 at the production centres in Cochin and Calicut. The latter had risen as high as Rs.24 in March this year from Rs.19 at the start of the season in January. It is felt that the prices may not rise this year to the level of Rs.26 that had come to prevail after July last year.

Indian ginger is fancied abroad for its high quality, so that it finds a market even in the face of low prices offered by China - about Rs.700 less than the Rs. 1,900 per quintal, FOB at Cochin. As recently as 1985, India held 90 per cent of the international market in ginger, both fresh and dry. This year, export of fresh ginger has been negligible.

(The Economic Times 24 May 1988, 2)

154 CCI okays meat export

The Chief Controller of Imports and Exports has decided to allow the export of Buffalo meat within a limited annual ceiling of 100,000 tonnes subject to a minimum export price of Rs.11.50 per kg, FOB for the year April 1988 to March 1989.

It has also been decided to release a ceiling of 11,000 tonnes of sheep meat and 5500 MTs of goat meat for export, during this period. The two categories of meat are being released subject to a reservation of 30 per cent of the total ceiling out of the said quantities for export of frozen meat.

Both the exports of goat meat as well as sheep meat will be allowed on outright sale basis and not on consignment basis.

(Economic and Commercial News 18(20), 1988, 10)

155 India's share in world exports of selected food items

(Value: US $ Million)

Item	1980 World	1980 India	1980 India's share %	1985 World	1985 India	1985 India's share %
Meat & meat preparations	17832	67	0.4	15732	30	0.2
Fish, crustaceansand molluscs and preparations thereof	12258	242	2.0	14329	326	2.3
Cereals and cereal preparations	41989	201	0.5	30698	35	0.1
Rice	4355	160	3.7	2313	26	1.1
Vegetables & fruits	24018	259	1.1	25387	297	1.2
Sugar, Sugar preparations and honey	16183	46	0.3	5684	45	0.8
Tea and mate	1631	452	27.7	1635	195	12.0
Spices	1072	156	14.5	1059	79	7.5
Oilseed and oleaginous fruit	9487	30	0.3	8221	7	0.1

Source: Economic Survey 1987-88; Ministry of Finance (Economic Division), Government of India.

IMPORT

156 No change in import policy for copra, coconut oil

The commerce ministry has clarified that the import of coconut oil, copra and natural rubber continues to be canalised under the import policy for 1988-89 and therefore there is no change in the policy, reports UNI.

Coconut oil and copra can be imported only by the State Trading Corporation and Hindustan Vegetable Oils Corporation as in the previous years. Since 1985 these agencies have not imported these items, the ministry said in a note.

Regarding natural rubber the ministry said it used to be canalised through the STC and the same policy continues. Import is made only to meet the gap between production and consumption and the STC releases the imported and domestically procured quantities during the lean months.

Regarding spices, the new import policy provides for import of cloves, cinnamon, cassia, nutmeg and maceunder Open General Licence (OGL) for stock and sale, the note said. Import of these items has been under the OGL for a long time and only in September 1986 was their import canalised through STC. As there were difficulties in import and distribution, these items required in small quantities, have been allowed for import under OGL.

Import of nutmeg and mace, so far canalised through Nafed, is not significant and has been allowed for import through OGL, the note added.

During the current year the items canalised for import through public sector agencies were reviewed to ensure the objectives of canalisation. Only those items which were bulky in nature or where there were a large number of actual users or where there were advantages in bulk imports have been retained in the canalised list. On this basis imports of cloves, cinnamon, cassia, nutmeg and mace was decanalised, the ministry said.

(The Economic Times 27 April 1988, 12)

157 Import of shrimp by Benelux - new regulations

From January 1988, the import of shrimp by Belgium, Luxembourg and the Netherlands is subject to the following conditions:

1. The shipment has to originate from a company in a third country that is recognised by the ministry of Public Health Working Group, on recommendation of the Benelux country where the application for recognition is put forward.

Recognition of a company takes place after the Special Commission for Health has approved the assurance, provided by the authority in the third country where the company is located, that the company has treated the shrimp in accordance with the hygienic requirements Of the FAO/WHO Recommended International Code of Practice for shrimp and prawns (AC/RCP 17-1978) and that quality control at the company is satisfactory.

2. It should be accompanied by a certificate of health.

3. It will be subject to random sanitary examination, including microbiological examinations.

Details on the certificate and the microbiological standards required may be obtained directly from: Dr. Klass Buchli, Staatstoezicht op de, Volksgezondheid, Postbus 5406, 2280 HK Rijswijk, The Netherlands.

(Seafood Export Journal 20(3) 1988, 33)

TRADE INFORMATION

158 Organised sector - Soft drink industry (without soda) 1987

(Cases in millions)

	COLA		LEMON		ORANGE		OTHERS		TOTAL	
	Cases	M.S. %	Cases	M.S. %	Cases	M.S. %	Cases	M.S. %	Cases	M.S. %
Parle	15.3	36	16.6	52	9.1	42	5.2	54	46.2	44
Pure Drinks	10.2	24	4.1	13	4.9	23	2.9	30	22.1	21
McDowells	1.9	4	3.4	11	2.3	11	-	-	7.6	7
Double Cola	6.0	14	2.0	6	2.5	12	-	-	10.5	10
77	4.3	11	1.0	3	-	-	-	-	5.3	5
Others	4.6	11	4.7	15	2.7	13	1.6	16	13.6	13
Total	42.3	100	31.8	100	21.5	100	9.7	100	105.3	100

(The Economic Times 12 May 1988, II)

159 Vanaspati prices shooting up

The implementation of the vanaspati price control is in jeopardy as a result of an acute shortage of tin containers.

The ruling market price of a 15 kg tin is around Rs.365 against the voluntarily agreed ex-factory price of Rs. 335.

Vanaspati prices started firming up due to constant short supply. The situation is expected to worsen in the near future as the vanaspati producers will be forced to cut down production in the absence of adequate packaging material.

The availability and price situation of tin containers have become grim. During the last three weeks tin prices have shot up from

Rs. 20 to Rs. 30 per tin, a 50 per cent hike and still enough quantity is not available, according to industry sources here.

This has resulted in a cost escalation for the industry, which has already been suffering from substantial uncovered cost escalations on account of recent hike in administered price the sources said.

The industry feels that the situation has arisen largely due to under estimation of the size of the oil can demand. This was followed by lower requisitions of tin mill black plate by tinplate producers from MMTC. Besides, serious delays in the shipment of black plate coils continue.

Cost apart, the availability of tin plate has become extremely scarce, which has begun to have a telling effect on vanaspati production, said a spokesman for the vanaspati manufacturers.

"Unless some remedial steps are taken soon, we expect the situation to snowball into vanaspati shortage precisely by the time its demand picks up on account of rural marriages and local festivals after rabi harvest", the spokesman added.

He suggested certain urgent steps, including immediate permission to use second hand tin containers. "This was done in the past when the problem was not as acute as it is now," he added.

He further suggested that vanaspati units be allowed to import tinplate to meet a quarter of their requirements and also to institute regular review meetings under the auspices of civil supplies ministry, involving the steel ministry, tinplate producers and MMTC, to take stock of the situation.

(Economic Times 24 March 1988, 3)

160 Price support scheme for copra

The Union Government has decided to introduce a minimum price support scheme for copra, the Union Minister of State for Agriculture Research, Mr. Harikrishna Sastri, said on Saturday.

Addressing a meet-the-press programme organised by the Alleppey Press Club, he said that with the introduction of the scheme, efforts would be made to announce minimum price on a regular basis to prevent any fall in the price of coconut and copra.

He said an integrated farming scheme in small coconut holdings had been started and 10,000 hectares would be brought under better farming programme. Rs. 9 crores would be made available to the Coconut Development Board during the Seventh Plan for various schemes for coconut development.
(Financial Express 2 May 1988, 1)

161 MEP for basmati rice fixed

The Union government has fixed the minimum export price (MEP) for basmati rice at Rs. 7,500 per tonne.

A public notice issued by the chief controller of imports and exports on April 19 states that the MEP is applicable "with immediate effect".

The export of basmati rice is allowed under open general licence (OGL).

The country exported 2.06 lakh tonnes of basmati rice valued at Rs. 196.3 crores in April-November, 1987. In 1986-87 full year, the exports were of the order of 2.37 lakh tonnes worth Rs. 206.78 crores.
(The Economic Times 23 April 1988, 1)

162 Tea Board office in Lucknow

The Tea Board has decided to open a branch office in Lucknow in the first week of April to coordinate programmes for organising for tea plantation activity in UP.

These measures make it clear that the Union commerce ministry is keen on making a serious bid for organising tea plantation activity in UP, as part of its drive to bring new areas under tea cultivation. An important criterion for extension of the new tea unit financing scheme is that the Tea Board should be satisfied that the identified area will be capable of supporting tea cultivation on a commercial scale.
(Economic Times 24 March 1988, 3)

163 Code of ethics for food industry

A code of ethics for the food industry and trade has been evolved by the Confederation of Indian Food Trade and Industry (CIFTI). It spells out steps to be ensured by the manufacturers and traders of foodstuffs to protect consumer interests. The CIFTI code elucidates eight articles for specific requirements of food standards relating to hygiene, manufacturing practice, nutrition, weights and measures, advertisements, consumer relations and others. The code attempts to supplement and complement national food laws and the quality control infrastructure.

CIFTI is sponsored by the Federation of India Chambers of Commerce and Industry (FICCI).

(Financial Express 29th June 1988, 9)

164 Modernise pepper cleaning facilities

A five-year plan to modernise the facilities for cleaning, processing and packaging of black pepper is under way to meet the threat to the pre-eminent position of Indian pepper in the world market.

The market for Indian pepper was seriously affected in the US this year on account of quality problems.

The Food and Drug Administration (FDA) of the US had placed black pepper from India under detection for the last several months from July 1987.

The Government had deputed a high-level delegation to Washington to explain to the US authorities the measures taken by India to ensure quality of Indian black pepper exports.

The US authorities have agreed to lift the automatic detention of black pepper in respect of future shipments from India which are accompanied by a valid certificate from the Export Inspection Council that they conform to the US FDA standards.

Regarding consignments which have already been sent but have not reached the US ports, FDA will waive automatic detention on a selective basis.

The Government has nominated the Export Inspection Agency (EIA) as the authority to inspect export consignments of black pepper.

EIA has been equipped with modern testing facilities and laboratory equipment. It has its own laboratory to check presence of rodent or animal filth and other factors, specified under the FDA regulations.

The Spices Board has initiated short-term measures to improve the quality of black pepper and to ensure that consignments are not contaminated. These measures include improvement of warehouses and godown facilities of individuals and ports, tightening up of the inspection procedure and educating the growers on the need for proper processing, cleaning and packing.

Pepper exporters are being persuaded to use machinery for automatic water washing, drying, grading and removing extraneous matter.

The Spices Board cautioned exporters against selling to buyers abroad below a minimum price, which corresponded to the minimum export price fixed by the Community.

Exporters of MG-I grade pepper were advised against selling below Rs.45,000 per tonne f.o.b. Minimum prices below which other grades may not be sold were similarly fixed. In order to enforce these stipulations, compulsory pre-shipment registration of export contracts was also introduced.

(Financial Express 24 May 1988, 4)

165 Industrial licences and letters of intent in December 1987

Industrial licences

Scheduled industry No.27: Food processing industries.

Corn Product Co. (India) Ltd., Shree Niwas House H. Somani Marg Post Box No. 994 Bombay 400 001 (COB): Plot No. 7 & 7A MIDC Indl. Area Thane Belapur Road P.O. Ghansoli Thane, Maharashtra; Corn flour, Custard powder, Jelly crystal, Synthetic Soft Drink Mix, Baking powder, Mayonnaise Sandwich Spread: 1,124 tons.

Letters of indent

Indian Immunologicals 11-4-657, Lakdi-Ka-Pul Hyderabad - 500 004 Andhra Pradesh (NA): Rakshapuram Rajendra Nagar Rangareddy Andhra Pradesh; Rhizobium Culture: 10,00,000 Packets (200 Grams each).

Government Milk Scheme Akola, Murtizapur Road N.H.6, Akola 444 001, Maharashtra (NA); Akola Maharashtra; 1. Milk Powder; 54,75,000 Kgs. 2. Butter: 87,60,000 Kgs. 3. Casein: 4,56,250 Kgs. 4. Ghee: 32,85,000 Kgs.

Pratap Kumar Misra, (M/s Kalinga Trawlings Ltd.), 68/1 Arunalay, Sainik School, Bhubaneswar (NU); Paradeep, Orissa: All varieties of fish: 1,300 tons.

Ruby Marine Foods Pvt. Ltd., 308, Sahid Nagar, (Ist Floor), Bhubaneswar (Orissa) (NU): Paradeep, Orissa; All varieties of fish: 600 tons.

Azia Ocean Foods (P) Ltd., 50-50-40A, Y.P.T. Colony, Visakhapatnam (NU): Visakhapatnam, Andhra Pradesh; All varieties of fish; 600 tons.

Collaborations:

Soyummy Food Products Pvt. Ltd. 8 Camac Street, Suit, 10 Calcutta-17; Marusan-Al Co. Ltd., Japan: Soya Beverages etc.: Financial.

(Financial Express 8 April 1988, 11)

FOOD REGULATION, QUALITY CONTROL AND HYGIENE

HYGIENE

166 Irish butter safe from radioactivity

The controversial Irish butter is absolutely safe and the fears of radioactivity are based on misinformation. The Atomic Energy Regulatory Board (AERB) constituted by the government of India is the competent authority for this country for radiological protection and it has allowed more safety margin than other countries, asserted the National Dairy Development Board here.

The NDDB has pointed out that the permissible levels of radioactivity in milk, dairy and other food products fixed by the AERB have been arrived at after due consideration of the threshold recommended by the International Commission on Radiological Protection. The AERB's safety margin is more stringent than other countries and international organisations like FAO and WHO, in arriving at the levels fixed for milk, dairy and other products.

(The Economic Times 27 March 1988, 3)

167 States told to ban non-iodised salt

The Union health ministry has asked defaulting states and Union territories to issue a notification banning the sale of non-iodised salt on a priority basis, reports UNI.

These include Haryana, Tripura, Madhya Pradesh, West Bengal, Bihar and Delhi.

This is with a view to achieving the goal of universal iodisation of salt by 1992, which is a part of the national goitre control programme. It envisages legal ban on the sale of salt other than iodised under the Prevention of Food Adulteration Act.

Official sources said it is proposed to increase the production of iodised salt from 7,00,000 tonnes in 1986-87 to 30,00,000 tonnes by 1989-90 to achieve the goal of universal iodisation of salt. *(The Economic Times 18 April 1988, 1)*

168 BARC unit monitoring food articles

Samples of all kinds of food articles imported from Central Europe are kept in constant vigilance to test the radiation level at the variable energy cyclotron centre of the Bhabha Atomic Research Centre situated in the northern fringe of Bidhan Nagar (Salt Lake City).

This is being done since the time of the Chernobyl disaster in the USSR as there is a concern among the public that these articles may have been affected by radiation, according to Dr. Bikash Sinha, Director of the centre.

Dr. Sinha says that this research is a continuous process and is being done at Calcutta and at Trombay. "Very rarely but certainly in some cases the radiation level has been found to be more than that allowed by the world standard in this respect," he says adding, "that does not mean, however, that there is anything to be concerned about. "The radiation level of the soil of different parts of India too varies. For example, the radiation level of the soil of eastern India on an average, is higher than that of the western region for many geophysical reasons, particularly mining. In the soil of Kerala, because of the large thorium content, the level of radiation tends to be higher but this has created absoluted no problem for centuries. *(Chemical Weekly 15 March 1988, 61)*

169 Irradiation of sea food and spices

Government has decided to permit the MSE of irradiation for sterilizing sea food and spices meant for export after the Atomic Energy (Control of Irradiation of food) Rules 1988 are notified. In addition the "Code of Practice for the Operation of Irradiation Facilities: and "General Standard of Irradiation of Foods" are also being finalised.

The sterilisation process involves selective destruction of spoilage bacteria whereby acceptability and marketability of iced fish is extended by giving moderated doses of about 200 kilorads of radiation. This is the only method for removal of pathogens from prepacked frozen product. Single treatment of Gamma radiation can make spices free of insect infestation and microbial contamination, without losing flavour components. The treatments can also be used for prepared ground spices and curry powders.
(Yojana 32(8), 1988, 7)

TRANSFER OF TECHNOLOGY AND NEW INDUSTRIES

170 Maize processor complex in UP

A Rs. 22-crore maize processor complex is to be set up in Bulandshahr district with West German technical knowhow.

The Pradeshiya Industrial and Investment Corporation of UP Ltd. (PICUP) recently collaborated with the Starcosa of West Germany to form a joint sector company for the proposed complex.

Items to be manufactured in this complex include special starches, dextroses, glucose and maltodextrine.
(Financial Express 1 April 1988, 4)

171 Fruit juice bottling plant inaugurated

The second fruit juice bottling plant of Modern Food Industries (India) Limited was inaugurated by Mr. Sukh Ram, minister of state for food and civil supplies, here on Monday. The new plant would produce about 18 lakh cases of different varieties of rasika per annum, each case containing 28 bottles.

The minister said Modern Food Industries had an ambitious plan

to set up a Rs. 2.5-crore plant at Silchar in Assam to produce pine-apple concentrate. This would be in addition to the fruit pulp unit at Bhagalpur in Bihar set up by the company where mangoes, tomatoes, guava and other fruits are processed.
(The Economic Times 27 April 1988, 6)

172 Two refining units to be set up

Two major refining mills with a total processing capacity of 300 tonnes of oil palm fruits per day were proposed to be set up by Oil Palm India Limited, a joint venture of the governments of India and Kerala, with collaboration of a Malaysian company at Yeroor and Chithava in Quilon district in Kerala, the state agriculture minister, Mr. V.V. Raghavan has disclosed, reports PTI.

He said that encouraged by profitable cultivation of oil palm in Kerala, the government of India had decided to bring new areas under oil palm in Karnataka and Andhra Pradesh.
(The Economics Times 9 May 1988, 3)

PERSONALIA

Nil

I N D E X

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RAW MATERIALS

Nil.

STORAGE

173 Keeping fruit fresh

American scientists have discovered that a substance found in insect, crab and lobster sheels can help to keep fruit fresh for up to nine months.

A chemist from the Acadia University in Wolfville, Nova Scotia, has produced a water-soluble derivative of the polymer chitin, which he is using as a spray known as Nutri-Save.

The spray forms a semipermeable coating on fruit which allows just the right amount of oxygen to pass through to keep the fruit fresh. The coating effectively puts the fruit to sleep by slowing down its respiratory process. In cold storage the fruit will keep far longer than normal, since each individual fruit is wrapped in its own environment.
(The Hindu 17 August 1988, 19)

174 Keeping Bananas Fresher

Every Banana producer or exporter is always eager to use techniques available for keeping his produce fresh for a longer period. The Botany Deptt. of University of Malaya (UM) has encountered positive results in a project undertaken with the assistance of the Australian International Research Centre, for delaying the ripening of 'Pisang emas' a variety of banana by 15 weeks.

The new technique is different from the current popular method of wrapping the banana in polythene bag which is effective for about 11 days. Under the new technique, unripe 'Pisang emas, were treated with 'Bynonml' an anti-fungal chemical not dangerous to health and wrapped in air-tight plastic bags. The Bananas would keep well in a 15°C temperature and would ripen normally within a few days once unwrapped.

This method would reduce the rate of fungal growth and ripening besides upgrading the quality of the fruit. This would help exporting bananas by sea instead of air. The new find has to be tried out by producing countries like Jamaica.

For details contact: Prof. Datuk A Nawawi, Botany Dept. University of Malaya (UM), Lembah Pantai, Kuala Lumpur.
(Indian Food Packer 42(2), 1988, 115)

175 Tomatoes with longer shelf life

Table tomatoes which will remain in top condition for as long as four weeks after their harvest are being developed here by a team of scientists at the Hebrew University's Faculty of Agriculture. The new varieties may also prove valuable in tropical developing countries as well.

For several years Prof. Kedar and his Hebrew University associates have been breeding tomatoes for disease resistance and high yields. As part of their efforts, they also aimed at the development of varieties with an extended shelf life. To that end, tomatoes from different parts of the world were bred in hundred of combinations, from which ten were chosen as the most suitable. Several of the varieties finally developed combine good colour, flavour, disease resistance and high yields with firmness for at least a week after they turn red; the types earlier grown here had to be consumed within a few days after harvest.

Now the team, in co-operation with Dr.Yossi Misrachi, of Ben Gurion University, has begun to use genetic mutants of plants some of which take several months to produce ripe tomatoes. Crossing them with established Israel varieties already has produced tasty fruit with very bright red colour and an exceptionally long shelf life. Further efforts will now be required to turn the most promising of those developments into commercial crops.
(Beverage and Food World Annual 15(1),1988, 92)

176 Grain storage damage in China

China has the lowest proportion of grain damaged during storage, a survey by the Food and Agriculture Organisation (FAO) has shown. Over the past few years, about 85 per cent of the State-owned barns in China have been cleared of harmful insects, rats, birds, mildew and rot. As a result, the proportion of grain damaged during storage in China has been cut to less than 0.5 per cent, the lowest in the world, according to Mr. Lin Changrui, an official of the Bureau of Science and Technology under the Ministry of Commerce. The world average for grain damage during storage is between six and ten per cent, according to FAO, which surveyed more than 50 countries.

Even in developed countries like the US and Japan, the proportion of grain damage is still as high as about five per cent. In fact, to introduce Chinese grain storage technology to other countries, FAO has been conducting training courses for the past few years.

China has a grain storage institute in Sichuan Province. In addition, research organisations devoted to grain storage, which are spread all over the country, employ more than 2,000 researchers.

Since 1978, China's grain processing industry has incorporated and indigenised advanced technologies from abroad.
(*Financial Express 14 August 1988, 3*)

FOOD ADDITIVES

177 Lecithinated cocoa powder

Cocaofabrick De Zaan, Holland, has recently published information on lecithinated cocoa powders. Cacao De Zaan has succeeded in adding lecithin to some of their cocoa powders, as a result of which these so-called sal-powders are perfectly wettable and suspensible.

Using these sal-powders the instant dairy product manufacture do not have the problems of other ingredients such as sugar becoming lecithinated during agglomeration. The flavour of the finished product is not adversely affected by a surplus of lecithin.
(*Indian Cocoa, Arecanut and Spices Journal 11(1), 1987, 17*)

PROCESSES

178 Carbonated milk

Researchers at ARS' Southern Regional Research Centre in New Orleans were looking for new ways to use surplus powdered milk when they came up with what could be called soda milk.

Actually, they've made two types of this carbonated brew--one with artificial strawberry flavouring and the other mixed with filtered apricot juice, according to food technologist Ranjit S. Kadan.

Soda milk is made by bubbling carbon dioxide gas through a mixture of water, powdered nonfat dry milk, flavouring or apricot juice, and other ingredients. The mixture is kept under pressure and bottled right away so the carbonation doesn't escape.

"It's only a crude laboratory mixture, but it tastes great', Kadan says. "You get that tingling, refreshing sensation of carbonation that you get in soft drinks, and you're also getting calcium, protein, and Vitamin C from the milk and juice".

In tests last year, Kadan says, the strawberry-flavoured milk stayed fresh upto 6 months under refrigeration; the juice mixture lasted 2 to 3 months.

EQUIPMENT AND MACHINERY

182 Food filling machine

Fully and semi-automatic food-filling machines able to dispense almost any food products have been developed by Tri-tech Systems. The units can be stripped without the use of tools for thorough cleaning comparatively faster, it is claimed, and offer "fill-accuracy" in the order of ± 0.25%. Made in 316-grade stainless steel, the unit is installed with existing packaging systems including thermoform, pipelines and form seal machines or as a tabletop depositor, stand-alone, semi-automatic dispenser or fully automatic conveyorised filling machine. Various models in single and multihead are available to handle fill sizes from 10 to 2,500 ml. Units can be supplied with interchangeable dispensable cylinder assemblie for extending the dispensing capacity. Clean filling or depositing is assured by a range of purpose-designed nozzles and shear blades. Tri-tech offer a turnkey approach to liquid and semi-liquid filling problems, from project evaluation, through design, supply installation and test to full after-sales care.

For more details write to: Tri-tech Systems Ltd., Unit 9, Cliffe Industrial Estate, South Street, Lewes, East Sussex BN8 6JL, U.K.

(Chemical Products Finder 7(1), 1988, 37)

183 Rotary powder filling machines

Autopack England offers semi-automatic and automatic rotary powder filling machines having filling speeds of 25 to 100 fills/minute. These machines can handle powder products like milk powder, fruit salts, spices, talcum powder and other free flowing and non-free flowing powder products. The company also offers semi-automatic and automatic liquid filling lines with capacities ranging from 100 cc to 200 litres. Also available are multi-head selective weigher for frozen foods, vegetables, confectionery, dry roods, snacks, nuts, biscuits, etc. The products are filled by weight with the help of microprocessor based control systems.Linear weighing machines with vibratory sealers are also offered.

For further information write to: Panpack Marketing,Panchal House, Station Road, PB No 48, Anand,Gujarat 388001

(Industrial Products Finder, 16(9), 1988, 219)

184 Filling/plugging and capping system

Vista Technical Consultants offers a monobloc machine performing a series of operation like filling, plugging, plug sealing and capping from CE King of UK. This compact, easy to use and maintain machine finds applications in food, and chemical industries where the packaging involves a rigid container filled with powder, paste, lotion, syrups; a plastic, metal or rubber plug and/or an outer cap. The machine accepts containers on a conveyor and plugs and caps in orienting and feeding bowls. The machine handles the container and presents it to various workheads to carry out filling, plug inserting, sealing and capping operation. The containers could be a glass bottle/vial, a plastic blow moulded container or a metal can. The container can have round, oval, square, rectangular or any other shape. The machine handles all types of plugs such as rubber stoppers, nozzles, and droppers. It is capable of handling ROPP caps, screw caps, alu caps, push-on caps and pilfer proof caps. There are two models of this machine giving outputs upto 70 and 140 containers per minute. Being ruggedly built and competitively priced, these machines are ideal for Indian conditions. Vista Technical Consultants is organised to provide installation, commissioning and after sales service of these machines.

For more details write to: Vista Technical Services Pvt Ltd., C/o Mather and Platt(1) Ltd, 5/5A, PN Kothari Estate, 200 LBS Marg, Bhandup (West), Bombay 400 078.

(Chemical Products Finder 7(1), 1988, 76)

185 Electronic oil filling machine

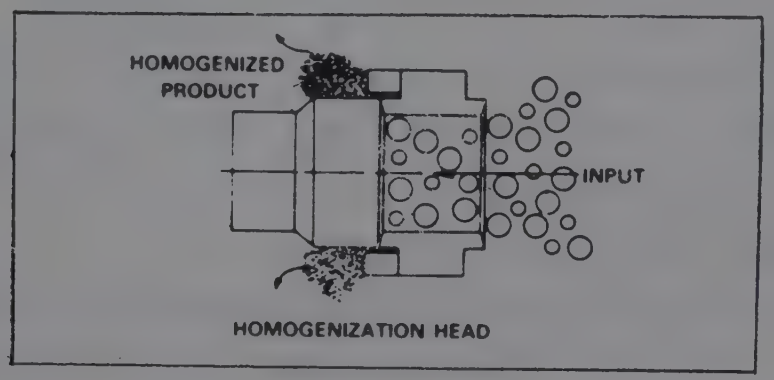
The electronic oil filling machine from Sidhant Enterprises is a compact unit approximately of the size 600 x 450 x 300 mm. It is a complete machine with its own pump, measuring arrangement and solenoid valve. Any quantity of oil which needs to be filled can be adjusted with the thumbwheel switches mounted in front. These setting switches are installed in a lockable pocket. With the help of a pushbutton, the preset quantity of oil is filled. The quantity being poured is displayed through 100-mm wide digits. Totaliser with digital display is optional. On completion of the preset quantity, pump is automatically switched off and solenoid valve is closed. At this time, a signal is also given to the operator about the end of pouring cycle. The machine is available in different models for liquids of different viscosity. Other features include in-built voltage stabiliser and battery back up. The machine is easy to install and use: just connect the inlet to the overhead tank supply and connect the unit to power source, now it is ready for use.

The machine can also be designed to meet specific req ements.

For further information write to: Sidhant Enterprises, B-456-457, First Floor, Nehru Ground, Faridabad, Haryana 121 001.
(Industrial Products Finder 16(10), 1988, 157)

186 High Pressure homogeniser

Goma Engineering has introduced high pressure homogenisers with pressures up to 700 kg/cm^2 and capacities up to 6,000 LPH. The homogeniser is basically a triplex plunger pump, horizontally mounted, with a built-in homogenisation device. The process liquid is subjected to high pressure, which is relieved over a one or two stage homogenisation device of special configuration. The resulting abrupt pressure drop creates high shearing and cavitation forces which reduce the particle size of drop-lets and solids. One or two stage homogenisation



heads with hydraulic pressure setting by means of manual control valves are offered. This ensures ease and exactness of operation and maximum safeguarding against excessive pressure. Applications include, homogenisation of emulsions and suspensions in chemical, food and beverage, dairy, oil emulsion, fruit juice, ketchup, baby food, milk, proteins, etc.

For more details write to: Goma Engineering Pvt Ltd. 9-B, Ketyco Indl. Estate, Majiwade, Thane, Maharashtra 400 601.
(Chemical Products Finder 7, June 1988, 163)

187 High output cooker-extruder

A high-output cooker-extruder, which can be easily adapted to process a great variety of food products, is claimed to offer attractive speed and operating cost advantages over conventional cooking process.

The Twin-Screw Cooker-Extruder can provide a continuous output capacity of 200 to 500 kg/h. The design allows precise control of moisture content leading to substantial savings on energy, and far less human supervision is required than with batch cooking techniques. The two intermeshing steel screws are assembled from a selection of modular components in order to optimise the

compression, shearing and mixing characteristics for any particular end product. The barrel casing in which the screws rotate is assembled in sections, so that wear-prone parts can be replaced easily. The ccoker extruders offer attractive advantages in processing cereal and bakery products, and that they are being used increasingly by manufacturers of confectionery, snack and animal-food products.

For details contact : Sale Tilney Technology PLC, Weybridge, Surrey KT 15 2RH U.K.

(Indian Food Packer 42(2), 1988, 135)

188 Agitators/mixers

Gladwyn Engineering Co. offers a range of agitators for all types of mixing applications like mixing, gas absorption, homogenisation, blending and dispersion for the chemical, food processing, vegetable oil, and various other industries. The range of agitators include side fixing portable type agitators with propellers, vertical dispersion type dispersators, vertical turbine type with discs, axial flow or curved blades. Sizes range from 1 HP to 300 HP. Material of construction of the agitators is carbon steel, stainless steel and other alloys. All Gladwyn agitators are designed using an indigenously developed computer aided design software package. The company offers services for agitator design problems. Also offered are filter presses, spray dryers with high speed atomisers, continuous distillation plants, multiple effect evaporators and steam jet ejectors.

For more details write to: Gladwyn Engineering Co., 26/3 Pushpa Vihar, Opp Colaba Post Office, Bombay 400 005.

(Chemical Products Finder 7, June 1988, 179)

189 SS monobloc centrifugal pump

Pharmalab Group has specially designed an open impeller monobloc centrifugal pump to facilitate smooth and even transfer of various liquids particularly in dairy, food processing, beverage, vegetable oil and other allied industries. Construction from high grade-pressed stainless steel, provided with sanitary fittings and highly finished mechanical sealing system ensures leakproof working. Pumps are also available in different sizes of semi open impellers, easy-to-install, dismantle and clean.

For further details write to: Pharmalab (Group) Marketing Agency, Star Metal Compound, LBS Marg, Vikhroli, Bombay 400 083.

(Chemical Products Finder 7, June 1988, 226)

190 Microwave continuous food drier

Hi-Tec System launched multi magnetron continuous process commercial microwave drier has aroused the interest of many sectors of industry. Successful trials have been carried out on food products such as wheat, rice, pecans, macadamias, flour and hops. Designed by a research team and developed through State and Commonwealth grants, the drier permits continuous process drying with a high level of control and energy efficiency. The drier has produced results demonstrating an energy consumption of less than half that of a comparable gas or oil fired drier. The drier's cooking system retains virtually all microwaves within the system, and an unimpeded conveyor moves product in, and then out, of the drying chamber whereas traditional chamber design has allowed for one magnetron per chamber. The Chamber configuration in Hi-Tec System's drier enables magnetrons to be fired side by side and opposite each other, with 16 magnetrons in each chamber.

For details write to: Mr. Keith Thornton, 4, Morona Avenue, Wahroonga, NSW 2076, Australia.

(Indian Food Packer 42(2), 1988, 146)

191 Chillie-punching machine

Scientists at the Agricultural Engineering Division (AED), Indian Agriculture Research Institue, New Delhi, have developed a chillie-punching machine which helps dry chillies faster.

The machine essentially consists of two square trays, fitted over one another, in a box. The upper tray is fitted with a large number of needles, whose sharp ends point towards the lower tray placed two to three inches below.

The chillies are placed in the lower tray. A lever fitted at the side of the upper tray, when turned, pushes the needles down on the chillies which thus get 'punched'.

The machine can punch and prick as many as 15 kg of chillies per hour.

The pricked and punched chillies dry much faster than unpunched ones, sometimes taking as little as 40 per cent of the time taken by unpricked ones. The machine can also punch fruits like "amla" and "ber".

(PTI Science Service 7(11), 1988, 1-2)

192 Pulse dehulling and splitting machine

Scientists at the Agricultural Engineering Division of the Indian Agricultural Research Institute in New Delhi have developed a low-cost pulse-milling machine which can dehull and split. The dehulling portion of the machine comprises a steel cylinder with a rough surface, and a concave

steel plate below the cylinder. The dehulling set is provided with a feed hopper above and blower below. All parts are mounted on an angled iron frame. The cylinder is 225 mm long and has a diameter of 150 mm. Its outer surface is covered with a mesh. A concave plate having the same radius of curvature, and fitted along its length with 1x1 mm grooves, 25 mm apart, is provided below the cylinder.

The cleaned and graded raw material is fed into the feed hopper mounted on top of the cylinder. Due to gravitational force the material flows from the hopper into the dehulling set at a rate which can be controlled with the help of regulator fitted at the bottom of the feed hopper.

The husk is removed as the grains are rubbed between the moving rough surface of the cylinder and the stationary rough surface of the concave plate. The mixture of the husked and unhusked split and whole pulses fall from the outlet at the bottom of the machine. As it falls, it is subjected to an air blast from a blower, which removes the husk and other light materials like dust. The cleaned pulses are collected at the main outlet

During trials, the machine recorded 94 per cent efficiency and a capacity to dehull 128 kg. to 140 kg. of pulses per hour. Its electricity consumption is 2.15 Watts per hour, depending on the quality of the raw materials such as purity, moisture content and uniformity of size.

The machine, which does not cost more than Rs.3,000, can be operated by a single person, using a one-horsepower, three-phase electric motor .

(Financial Express 14 August 1988, 6)

193 Milktesting centrifuges

An Indian manufacturer of milktesting appliances and other dairy machinery offers hand-driven and electric-powered milktesting centrifuges.

Hand-driven centrifuges are claimed to be of solid construction, strong and sturdy and perfectly alligned, and to run smoothly. They have ball-bearings and speed indicators. Models for 4, 8, 12 and 24 tests cost USD 26, USD 27, USD 28 and USD 29 respectively.

The specifications for the electric-powered ones include: 50 Hz, single phase 220/230 V with switch and 0.25 Hp motor. Without timers, the 8, 12 and 24 tests centrifuges cost USD 96, USD 98 and USD 100 and with timers, USD 125, USD 126 and USD 128.

(Economic and Commercial News 18(29), 1988, 13)

194 Bread moulding and baking oven

An Indian manufacturer of food-processing equipment offers a bread moulding machine and bakery oven. The machines are manufactured by Gardners Corporation. The specifications of the bread moulding machines are: Four roller types with a capacity of 500 to 700 loaves an hour, each weighing 400 g, and a motor.

The baking oven is electrically heated and double-walled with full insulation. The machine is also fitted with a thermometric temperature control switch and can produce 150 loaves each weighing 400 g, in 30 min.

The company has already exported its wares to Bangladesh, Burma, Mauritius, Nepal, and some African countries.

(Economic and Commercial News 18(27), 1988, 14)

195 Vanquish bottle washer

Four milk bottle cleaning machines, specially designed for small dairies, have been introduced by West Yorkshire based Newsmith Stainless Ltd.

The single-end soaker hydros of various capacities, are capable of washing and rinsing between 3600 and 7200 bottles an hour. The machines operated by one person are hygienic and durable because of their stainless steel construction and they are compact. Each model occupies an area of less than 5 sq m, an important benefit where floor space is restricted.

Fully automatic loading is available as an optional extra, although the semi automatic bottle infeed fitted to standard versions of machine will suit most dairies.

To reduce the possibility of breakages, bottles are removed from the machine by continuously rotating cams which lower them gently on to the discharge conveyor.

Variations in throughput can be obtained by merely turning a manual control to regulate the thyristor-controlled DC motor that drives the chain conveyor.

All filters, steam and water connections, drains and overflows are grouped together to simplify installation and servicing. Running lights monitor the washing sequence and, if any stoppages occur, fault lights will identify their location.

(Food Trade Review 57(6), 1987, 284)

196 Portable brewing machine for iced tea

Designed for cafeterias, restaurants, and hotels, the Fresh Brewed Iced Tea Machine brews, cools, and dispenses tea made from tea leaves in a flow-through filter pack.

For further information write to: Cecilware Corporation, 43-05, 20th Avenue, Long Island City, New York 11105, U.S.A.
(Industrial Products Finder 16(9), 1988, 158)

197 Flotation clarifier

The Dewan flotation clarifier works simultaneously by flotation and sedimentation. Most fluids can be clarified within four minutes. The design is shallow, open and self-cleaning. Dependable controls are provided for the unit to work 24 hours around the year. Because of small size it can be located inside plant building. It is also very good for recovery of oil, primary clarification and as thickener in dairies, vanaspati mills, chemical industry, food processing, textile mills, etc. A unit to handle 60 m^3/hour is less than 3 metres in diameter and 1 metre in height.

For more details write to: Dewan Kraft Systems Pvt Ltd.,N-127, Greater Kailash-1, New Delhi 110 048
(Chemical Products Finder 7(1), 1988, 14)

198 Year-round coconut drying

A wood-fired cabinet drying system is helping a small women's co-operative in Bangladesh to produce dessicated coconut even in the wet season, when raw material prices are at their lowest and supplies most plentiful. In the past, the women were not able to work at all during the monsoon months of June to September because their solar driers were inoperative.

The coconut project is directed by the Menonite Central Committee (MCC). ITDG brought MCC's food technologist, Karl Bergen, to England for a two-week visit to learn about the construction and use of the cabinet drier. He then returned to Bangladesh and built one according to a modified design more suitable to local conditions. A second drier is planned for another MCC project.

Each of the 50 women has two solar driers, supplied to them through MCC, and the drying time is between five and six hours depending on the time of year.

In the rainy season, when the solar driers cannot be used, the newly installed cabinet drier carries out this final process. The lower coconut prices during the rainy season will ensure that production is still profitable, despite the extra cost of fuel.

Each woman earns on average 600 taka (£ 12) per month.
(Appropriate Technology 14(4), 1988)

199 Rotary grain cleaner

A rotary grain cleaner, which cleans and grades cereals, pulses and oilseed has been developed by the Agricultural Engineering Division (AED) of the Indian Agriculture Research Institute, New Delhi.

The machine consists of two screens in the form of concentric cylinders, on inside the other, a blower, a feed hopper and a drive unit, all mounted on an ir frame. The slope of the iron frame can be suitably altered to change the slope the screens.

Perforations of the inner screen are bigger than those of the outer screen. Both the screens rotate at the same speed and in the same direction. The machine which is operated by a one-horsepower, single-phase electric motor, removes the u desirable material from the desirable material on the basis of size and weight.

The material is fed axially inside the inner screen which retains larger-sized substances like stones. The material then passes into the outer screen whi retains the grains, removes grain impurities, and allows the fine materials to pa through. The grains retained on the outer screen come out through a discharge ou A fan-driven by a motor removes the lighter impurities like dust and chaff.

The machine consumes 1.25 kilowatt/hour of electricity per tonne of clean grains. During trials it cleaned 200 kg of wheat per hour, recording 95 per cent efficiency, according to Mr Amar Singh, an AED scientist.

The advantages of the rotary grain cleaner, over the earlier ones include it high efficiency and output capacity, low power consumption, low maintenance costs and smooth operation.

(PTI Science Service 7(13), 1988, 4)

200 Powder dozing machine

Autopack manufactures semi-automatic powder dozing machine for accurate fillin of powder and granules in containers, bottles, pouches, etc, with an accuracy up to 1%. Filling capacity ranges from 5 g to 1 kg and output up to 30 fills/min. The machine has an electronic counter for accurate fill and easy adjustment of weight. Special stirring system ensures good de-aeration. Power requirement is 0.75 kW. Fully automatic models with inline coding, cap fixing, etc. are also available.

The machine is suitable for filling dry syrups, coffee, food products in powder form, and pharmaceutical products.

For further details write to: Autopack Machines Pvt Ltd,101-C Poonam Chambers, 1st floor, Dr.Annie Besant Road, Worli, Bombay 400 018.

(Chemical Products Finder 7(1), 1988, 9)

201 Automatic chilling plants

Airconditioning Specialities manufactures automatic water and brine chilling plants operated by Freon 12 and Freon 22. The capacity range of water chilling plants is 1 to 400 TR. The brine plants are available in the capacity range of 1 to 50 TR and temperature up to -55°C. Chilling plants are available upto -70°C. Care has been taken to ensure that compressors and controls do not have any monopoly features. The condensers and chillers are carefully sized to match the desired flow rates and temperatures. Shell and tube condensers have copper tubes. integrally finned. Direct expansion chillers are shell and tube type having plain copper tubes. All the tubes are pressure tested at 21 kg/cm^2 and are field replaceable. The refrigerant circuit incorporates controls like liquid valve, strainer, charging valve, thermovalve and a pilot solenoid. These automatic plants are ideal for industries like chemical, food, oil and salt. The company can design and supply matching components like cooling towers, pumps, process tanks and electrical control cubicles for complete automatic operation. These plants incorporate safety controls against fluctuations in fluid pressure. The company offers services to survey and update old plants of any make.

For further information write to: Airconditioning Specialities, 40 GIDC Estate, Makarpura, Vadodara, Gujarat 390 010.

(Industrial Products Finder 16(10), 1988, 213)

202 Pressure washer cleaners

Jetwell Ltd. U.K., manufactures a unique range of products that operate as pressure washer cleaners for the cleaning, food processing, agricultural and general industries. They cost a fraction of the price of alternative equipment on the market, are light and compact, safe and simple to use, and require no regular service or maintenance.

For further information write to: Jetwell Ltd, 28, Molesworth Street, Wadebridge PL277DN, Curnwall, U.K.

(Industrial Products Finder 16(10), 1988, 23)

203 Safety matting for the food industries

A safety matting purpose designed for use by the food beverage and other hygiene conscious industries, is available from a British company. The Britannia range of matting is constructed of low toxicity PVC which conforms to the food industry regulations. It consists of red and white extrusions 13 mm high and 6 mm wide, interwoven to form a lattice. The extrusions are cross ribbed to provide extra grip in wet or greasy conditions. The matting is self draining, fully reversible, adaptable and almost indestructible. It is resistant to fire and most chemicals, is easily cleaned and has a full recovery from point loading. Two grades are avilable B2222F single-ply for normal use and B2210F double-ply for heavy duty applications.

For further information write to: Coba International Ltd, New Road, Kibworth Beauchamp,Leicestershire LE8OLE, U.K.

(Industrial Products Finder 16(10), 1988, 16)

PACKAGING

204 Packaging machinery for food industry

Wrapking Systems Ltd, UK,manufactures a wide range of packaging machinery for the food industry: horizontal form, fill and seal; vertical form, fill and seal; sachet machines, and stretch-wrapping machines. This range of equipment will be supported with weighers, augers, check-weighing, metal detection and shrink wrapping equipment. In the short term the company is looking for agents, but its long-term view is to look for a partner to manufacture, market, sell and service its machinery in India.

For further information write to: Wrapking System Ltd, Kargo House, Silverdale Road, Hayes, Middlesex UB3 3BN, U.K.

(Chemical Products Finder 7, June 1988, 249)

205 Easy availability of food grade plastics

A series of measures are soon be taken to ensure easy availability of food grade plastics meant for packaging of processed foods.

These steps are being taken, official sources say, as part of the strategy to promote development of the processed foods industry. It has been identified as a major thrust area for exports in the next few years. Packaging of processed foods in internationally accepted modes has therefore assumed significance.

The processed measures include reduction in import duties of polyester chips bottle grade as well as on equipment needed to manufacture containers made of such plastics. Incentives will also be given for setting up more bottle-making units based on food grade plastics.

Currently, it is pointed out, a large number of processed foods are being packaged in unsuitable plastics. For instance recycled PVC (poly vinyl chloride) is being used for many processed foods even though this reduces the shelf life of such products.

Processed food manufacturers are reluctant to opt for bottles made of polyethylene terephthalate (PET) or what is known as polyester chips bottle grade, because of high prices of this raw material. With the steps now proposed to be taken, the government expects that PET prices will fall, thereby making use of PET bottles and containers economically viable.

Apart from high prices, another problem being faced is inadequate availability of PET by bottle-making units. At present there is only one indigenous manufacturer of PET with an installed capacity to 1,200 tonnes per annum. The existing demand is about 2,000 tonnes per annum for bottle manufacturers and this is expected to rise to 3,200 tonnes per annum by 1988-89.

Although imports are being allowed to meet the balance requirements of industry, duty has been pegged at 245 per cent ad valorem. This would ensure that the landed cost of these chips is brought in line with that of other thermoplastic raw materials used for packaging purposes.

(The Economic Times 22 August 1988, 6)

206 Plastics processing courses

The oil industry development board will provide Rs. 11 crores for the development of training courses in plastics processing in the industrial training institutes (ITI's) during the next 5 years. The courses to be opened in 17 ITI's, will become operational from this year, according to an official release. These programmes will run in Gujarat, Maharashtra, Uttar Pradesh, Andhra Pradesh, West Bengal, Assam, Orissa, Punjab, Madhya Pradesh, Tamil Nadu, Karnataka and Haryana and in areas where plastic processing industries predominate.

(The Economic Times 26 August 1988, 6)

ANALYSIS

Nil.

COMMERCIAL INTELLIGENCE

PRODUCTION (RAW MATERIALS)

207 The Production of coconut in different states and its share to the all India during 1983-84 is as under:

State	Production (Million nuts)	% to total
Andhra Pradesh	192.4	3.3
Kerala	2,694.7	45.9
Karnataka	966.5	16.5
Orissa	97.9	1.7
Tamil Nadu	1,402.2	23.9
West Bengal	167.7	2.9
Goa, Daman & Diu	106.0	1.8
Others	243.6	4.0
All India	5,871.0	100.0

(Oils and Oilseeds Journal 38(7-12), 1986, 28)

208 State-wise production of onion and potato

ONION (Production in '000 tonnes)			POTATO		
State	1985-86	1986-87	State	1985-86	1986-87
Andhra Pradesh	163.9	147.0	Assam	308.8	337.7
Bihar	119.4	126.8	Bihar	1312.3	1334.5
Gujarat	477.7	477.7	Gujarat	153.1	253.6
Haryana	43.3	43.3	Haryana	143.1	131.5
Karnataka	196.1	183.6	Himachal Pradesh	49.3	37.8
Madhya Pradesh	135.8	151.3	Karnataka	244.1	222.7
Maharashtra	643.0	600.2	Madhya Pradesh	271.7	333.7
Orissa	382.1	382.1	Maharashtra	59.7	51.9
Punjab	27.6	27.6	Orissa	341.1	96.7
Rajasthan	46.8	57.0	Punjab	427.3	251.5
Tamil Nadu	198.9	158.2	Tamil Nadu	133.4	98.6
Uttar Pradesh	410.5	349.1	Uttar Pradesh	3940.2	5757.9
Others	17.6	15.7	West Bengal	2757.6	3542.6
			Others	281.1	280.7
All-India	2862.7	2719.6	All-India	10422.8	12731.4

(Nafed Marketing Review 18(5-6), 1988, 22)

209 Milk production

The country produced 46.1 million tonnes of milk in 1987-88, exceeding the target of 45.9 million tonnes, according to the Annual Report of the Department of Agriculture and Co-operation.

The co-operative dairy movement received further impetus during the year under Operation Flood III. As on October 1, 1987, there were 51,550 dairy co-operative societies with a total membership of 53.6 lakh people and a total processing capacity of 126.12 lakh litres per day.

The Rs 681 crore outlay of Operation Flood is likely to further increase with the proposed World Bank credit of 360 million dollars and the EEC aid in the form of 75,000 tonnes of skim milk powder and 25,000 tonnes of butter oil.

A new Aseptic Packaging Station was commissioned in Baroda. This, along with the existing ones at Surat, Indore, Jaipur and Guntur, markets ultra heat-treated milk in 33 towns

(Pashudhan 3(6), 1988, 2)

210 Production and export of tea from India

(Million kg)

Year	Production	Exports
1985	656	214
1986	624	201.60
1987	670	210

(NAFED Marketing Review 18(3-4), 1988, 25)

PRODUCTION (INDUSTRIAL)

211 Oil production during 1985-86

(in lakh tonnes)

Oilseed	Expeller Oil	Solvent Oil
Groundnut	11.00	0.50
Mustard/Rapeseed	12.25	0.25
Sesamum	1.80	Negligible
Linseed	1.60	"
Castor	1.60	"
Sunflower	1.50	0.50
Safflower	0.74	0.15
Nigerseed	0.30	Negligible
Soyabean	-	2.00
Cottonseed	2.50	0.25
Other new oils	0.50	0.10
Tree origin	0.50	0.50
Rice bran	-	2.50
Copra	2.40	0.10
	36.70	6.85

(Oils and Oilseeds Journal 38(7-12), 1986, 14)

212 Ricebran production (quantity in tonnes)

Year	Edible	Total
1983-84	23,000	1,83,000
1984-85	19,200	2,02,000
1985-86	30,000	2,50,000

(*Oils and oilseeds Journal 38(7-12), 1986, 28*)

213 Production and utilisation of molasses - 1986-87

(lakh tonnes)

State	Actual production	Total availability*	For distillation	Utilisation for other uses**	Total	Distillation as % of total utilisation
Andhra Pradesh	3.03	3.35	2.55	0.24	2.79	91.4
Bihar	1.30	1.84	1.08	0.03	1.11	97.3
Gujarat	2.33	2.59	1.34	0.93	2.27	59.0
Haryana	1.14	1.14	0.85	0.26	1.11	76.6
Karnataka	2.60	3.07	2.26	0.35	2.61	86.6
Maharashtra	8.51	9.64	6.74	1.03	7.77	86.7
Punjab	1.13	1.34	0.69	0.24	0.93	74.2
Tamil Nadu	3.73	3.78	2.96	0.50	3.46	85.5
Uttar Pradesh	13.24	14.16	7.80	1.48	9.28	84.1
Other states/ regions	0.71	1.67	0.92	0.31	1.23	74.8
Total	37.72	42.58	27.19	5.37	32.56	83.5

NOTE: * include carry-over stocks and receipt from other states

** includes for cattlefeed, lifting by other states and other uses.

(*The Economic Times 16 June 1988, II*)

214 Production and consumption of alcohol, 1987-88

(lakh litres)

State	Estimated production	Estimated availability*	Demand for Potable purpose	Demand for Industrial purpose	Total**	Availability as % of total	Potable as % of total demand
Andhra Pradesh	713.00	769.09	526.00	250.00	786.00	97.8	66.9
Bihar	280.00	290.97	115.00	80.00	205.00	141.9	56.1
Gujarat	310.00	349.45	-	575.24	575.24	60.7	-
Haryana	157.50	175.10	140.00	10.00	160.00	109.4	87.5
Karnataka	510.40	544.10	400.00	250.00	660.00	82.4	60.6
Maharashtra	1700.00	2012.03	560.00	981.32	1611.32	124.9	34.8
Punjab	291.28	305.49	203.37	120.50	373.87	81.7	54.4
Tamil Nadu	660.00	735.00	180.00	385.00	575.00	127.8	31.3
Uttar Pradesh	2443.20	2782.20	750.00	932.00	1782.00	156.1	42.1
Other states/ regions	894.84	130.79	1050.81	235.74	1341.36	9.8	78.3
Total	7960.22	8094.22	3925.18	3819.80	8069.79	100.3	48.6

NOTE: * including carry over from the previous year

** including for other purposes.

(The Economic Times 16 June 1988, II)

215 Installed capacity of iodised salt as on December 1987

State	Units (No.)	Installed capacity (000 tonnes)
Gujarat	124	1798
Rajasthan	101	1138
Tamil Nadu	13	172
Other States	27	596
Total	265	3704

(NFI Bulletin 9(3), 1988, 7)

216 Capacity utilisation in alcohol-based industries

(Per cent)

Product	1984	1985	1986
Acetic acid	56.0	53.0	51.5
Acetic anhydride	74.5	51.1	57.8
Butyl acetate	51.7	34.9	26.3
Monochloro acetic acid	49.9	85.9	73.6
Styrene	60.7	N.A.	N.A.
Polythylene	65.3	82.0	78.7
Butanol	54.6	24.6	23.2
Butadiene	26.3	13.4	N.A.
P.V.C.	67.8	74.5	74.5

(The Economic Times 16 June 1988, II)

EXPORT

217 New duty drawback rates announced

The Union Government has announced an improved duty drawback rate schedule, which covers many export items of food processing. The new rates came into effect from June 1, 1988.

Items for which the rates have been enhanced by nearly 10 per cent include products of food processing, engineering goods like galvanised pipes, tubes and boilers.

(Industrial Products Finder 16(10),1988, 75)

218 New blanket exchange scheme

The Reserve Bank of India has announced a new blanket exchange permit scheme under which exporters of 25 specific items will be allowed a foreign exchange release of up to a maximum of 10 per cent of the annual export earnings. Exporters of the following 25 products are eligible under the scheme. Tea bags, packet tea and instant tea, processed foods (meat and marine products, spices in consumer packs), value-added coffee, processed fruits, chemicals and pharmaceuticals, plastics and linoleum products, other processed foods, shrimps, and consultancy services.

(Chemical Products Finder, 7, June 1988, 259)

219 Special card for exporters is offing

The Union Government will shortly issue a special card to exporters. Addressing the "seminar-cum-open house meeting" organised by the State Bank of India (SBI) here, the Federation of Indian Export Organisation's President, Mr. Ramu Deora said, initially the cards would be issued to all trading houses so that their problems with banks and custom authorities would be cleared immediately

With such support from the Government, he hoped that the export houses would be able to achieve an export target of Rs. 10,000 crores until 1990. *(Financial Express 22 July 1988, 1)*

220 Pure milk ghee export allowed

The Union Government has removed the ban on exports of pure milk ghee and allowed it to be exported up to a limited ceiling.

The Government decision to allow export of pure milk ghee up to a limited ceiling has been given effect by a public notice, which shifts pure milk ghee from Appendix - 2 (which carries the list of items banned for exports) to Appendix-4 list 1 (which carries the list of export items with a ceiling). *(Financial Express 22 July 1988, 5)*

221 Processed foods - A thrust area for exports

The Commerce Ministry has identified processed foods as a thrust area for exports. Addressing an official meeting on issues relating to exports of agricultural items from Punjab in Chandigarh on July 15, 1988, the Minister of State for Commerce, Mr.P.R. Dasmunshi, suggested the preparation of an action plan for increasing exports of agricultural items including items of processed foods from Punjab. He said if a workable plan could be drawn up and implemented successfully for Punjab, similar plans could be prepared for other States also.

India, at present, is exporting agricultural items, including tea and coffee, amounting to a total of over Rs. 30,000 million. The Minister called for greater attention to the marketing of items like fruits and vegetables, cut flowers and processed foods. The low presence of Indian items in the external market in this sector had mainly been due to the relatively high unit cost of production, quality problems, transportation difficulties and quality of packaging.

The Indian processed food industry offers a vast potential as it can supply a wide range of quality food products at competitive prices. The exports of processed foods had increased to Rs 2.99 billion in 1986-87 while the export target for 1987-88 is of the order of Rs. four billion.

In fact, the Agricultural and Processed Food Products Exports Development Authority (APEDA), which is the nodal agency for processed foods exports, has been asked to draw up detailed export strategies for all its five export product areas. These areas cover canned and bottled fruits and vegetables including fruit juices, confectionary, walnuts, mushrooms, guar gum, guar meal, etc., fresh and frozen meal and poultry products, fresh fruits and vegetables, particularly mangoes and basmati rice. Export of basmati rice can be stepped up to a level of 800,000 tonnes from the current level of 237,153 tonnes by 1992. The target for export of Basmati rice during the current year has been fixed at Rs. 2.5 billion. (*Economic and Commercial News 18(31), 1988, 8*)

222 Groundnut exports register marginal increase

India has been able to sustain the level of exports of groundnut and its extracts during 1987-88 in spite of severe drought in some of the major groundnut producing areas of the country. Even though the volume of exports during the year under review was 289000 tonnes as against 290000 tonnes in the preceding year (1986-87) the value realisation improved to Rs. 707.8 million FOB from Rs. 537.3 million during the previous year, a rise of Rs. 170.5 million or 31.7 per cent.

Poland has emerged as the leading importer of Indian groundnut extractions (FOB Rs. 668.8 million), followed by Czechoslovakia (FOB Rs. 33.3 million), Sri Lanka (FOB Rs. 4.7 million), Kuwait (FOB Rs. 0.4 million), Nepal (FOB Rs. 0.3 million) and Mauritius (FOB Rs. 0.3 million).

To give a fillip to exports, the Government of India has chalked out a new strategy in the new Export-Import Policy for 1988-91. The policy allows export of groundnut extractions on contract with Groundnut Extractions Export Development Association (GEEDA). Under the revised new policy, the Joint Chief Controller of Imports and Exports, Bombay, will allow export by grant of export licences with validity of six months after the connected contract is registered with GEEDA. Initially, a quantity of 1,00,000 tonnes was released for the licensing period 1988-89 which has now been raised to 1,60,000 tonnes.
(*Economic and Commercial News 18(29), 1988, 7*)

23 Automatic detention reserved for sea food exporters

Five more exporters of frozen shrimp from India have been lately removed from the automatic detention by the Food and Drug Association (FDA) in the US.

The removal of automatic detention followed the export of consecutive salmonella-free consignments by these firms said the Marine Products Export Development Authority (MPEDA) sources here.

With the removal of detention of these five firms, the total number of Indian exporters in the list has risen to 41.

Of the five firms on which the ban was lifted lately, two are based in Cochin, one in Calcutta and two others in Bombay.

However, the sources added that the FDA is re-assessing the policy on handling perishable commodities. It is, therefore, possible that in the near future the FDA's Policy in this regard will be tightened. This is with a view to further reducing the possibility of violative goods entering the US.
(Financial Express 15 July 1988, 10)

224 Record export of marine products in 1987-88

Despite the decline in marine fish landings on the Kerala Coast, the lean season at Visakhapatnam which is the base of operation of most of the country's deep-sea fishing fleet and the sluggish Japanese market for certain counts of Indian shrimp on account of very stiff competition from Taiwan, China and Thailand, export of marine products during the financial year 1987-88 recorded significant growth.

Compared to the year 1986-87, during 1987-88 export of seafood registered an impressive rate of growth of 13.21% in volume and 15.31% in value. Total exports during 1987-88 went upto the all-time high of 97,179 tonnes surpassing the previous record of 92,691 tonnes in 1983-84. From Rs. 460.67 crore in 1986-87, export earnings from seafood reached the level of Rs. 531 crore during 1987-88

Product diversification and export of value-added items and increase in the quantity of shrimp in absolute terms contributed to the overall increase in volume during 1987-88. Export of shrimp, cuttlefish and lobsters increased in quantity. The increase in the case of cuttlefish was over 90% compared to the previous year whereas lobsters registered an increase of over 50%. The rate of growth in the case of shrimp was comparatively less at about 13%. Export of value-added items like individually Quick Frozen (IQF) Shrimp also contributed to the increase in value of exports.

Japan continued to be the leading market for our seafoods and accounted for 61% of the total export earnings though it was less than last year's share of 67%. Western Europe emerged as the second largest marked followed by the United States.
(Seafood Export Journal 20(6), 1988, 29, 31)

225 Meat, De-oiled cake exports put on OGL

The Government has made several changes in the export policy with items such as meat and de-oiled cakes, put under Open General Licence (OGL) subject to certain conditions.

Prior to this, items were permitted to be exported against the limited ceiling announced by the Government from time to time.

Other export items added to the OGL are black pepper (extra quality NG-1), coir and its products, and others.

According to a public notice issued by the Chief Controller of Import and Export, the exports of gum karaya has been canalised through the Tribal Cooperative Marketing Development Federation, instead of the National Agricultural Cooperation Marketing Federation (NACMF).

The categories of meat and de-oil cakes whose exports have been allowed under OGL are the following: meat of buffalo, both male and female, including heart, liver, lungs, brain, toungue, kidneys and other organs; meat of Indian sheep including heart, liver, lungs, brain, toungue, kidneys and other organs; de-oiled rice bran (rice bran extraction); de oiled groundnut cake (extraction); solvent extracted cotton seeds cakes (decorticated and undecorticated); and soyabean extraction.

(Economic and Commercial News 18(31), 1988, 7-8)

226 Minimum export price fixed

The government has notified minimum export prices (MEP) for buffalo meat and black pepper, while the MEP for meat of buffalo has been fixed at Rs. 11.50 per kg FOB, it is Rs. 19,000 per tonne FOB for black pepper (asta quality MG-1). According to an Export Control Order issued by the chief controller of imports and exports on July 12, export of meat of sheep and goat will be allowed only on outright sale basis and not on consignment basis.
(The Economic Times 18 July 1988, 3)

227 Sharp rise in exports of spices

Exports of spices rose to an all time record of Rs. 2870 million during 1987-88.

The record achievement of the spices industry was against an export target of Rs. 2600 million.

The notable export earnings from spices were mainly contributed by pepper, chillies and spices and oils. It was earlier estimated that the total export of oils and oleoresins of spices during the year would be to the tune of Rs. 120 million, but according to the estimates of exporters, the actual export

of oils and oleoresins during 1987-88 might touch Rs. 180 million.

The trend in spices exports from the country shows a welcome change in pattern so much so that the value added items like consumer packed spices curry powder and oils and oleoresins of spices are picking up on the export front compared to whole spices in bulk

During April-December 1987, India's exports of spices at 52,000 tonnes valued at Rs. 1774.5 million were less by 26.4 per cent in quantity by 4.1 per cent in value terms as compared to 70,700 tonnes valued at Rs. 1850.3 million during April-December 1986. The fall in quantity in this phase is attributed to the drought conditions in the country.

For the year 1987-88 the Spices Trading Corporation Limited had fixed a target of 300 metric tonnes of cardamom (150 metric tonnes for export, and an equal quantity for internal sales), 1000 metric tonnes of black pepper (700 metric tonnes for export, 300 metric tonnes for internal sale) and 100 metric tonnes of other spices to be sold in the internal market.

The total export of spices in 1984-85 was worth Rs. 2066.7 million, and rose to Rs. 2778.1 million 1985-86, registering an upswing of 34.4 per cent. However, the trend could not be sustained, and the figure came down to Rs. 2690.6 million in 1986-87, a decline of 3.1 per cent in value terms.

(Economic and Commercial News 18(30),1988, 7-8)

228 Cardamom prospects bright in Middle East

Cardamom exports in 1985-86 peaked to 3272 tonnes with the total production placed at 4500 tonnes at a total value of Rs. 585 million of which Middle East accounted for 2726 tonnes valued at Rs. 494 million. This represents almost 84 per cent of the total production while the following year witnessed a decline of about 55 per cent to reach 1447 tonnes out of the total production of 3500 tonnes. The production during 1987-88 is estimated at 2,900 tonnes of which less than 1000 tonnes may have been exported.

The projections for 1988-89 envisage the total production ranging from 4000 to 4500 tonnes of which it is expected that a quantity of 2500 to 3000 tonnes may be exported.

These figures relate to 'ellettaria' or small cardamom which is known for its rich fragrance. This variety of cardamom forms an integral part of a variety of food stuffs, pharmaceuticals, perfumery, and beverages. Its use is more pronounced among the Middle East Countries. Cardamom is also the chief feature of a ghawn' a unique beverage consumed in substantial quantities in this particular region

Competitors for the Indian cardamom are Guatemala, Tanzania, Sri Lanka and Papua New Guinea. Guatemala, with relatively fewer years of experience in the field, ventured into agressive production and marketing strategy and soon occupied the primary position accounting for 48 per cent of the world production, while Tanzania accounts for five per cent and Sri Lanka four per cent.

The countries, which accounted for increased cardamom exports from India during the years 1984-85 are Kuwait (1773 tonnes, valued at Rs. 468 million), Saudi Arabia (5074 tonnes valued at Rs. 1365 million to 5686 tonnes valued at Rs. 1300 million), Bahrain (80 tonnes valued at 26 million to 84 tonnes at Rs. 208 million), the United Arab Emirates (507 tonnes valued at Rs. 143 million to 620 tonnes worth Rs. 117.2 million), Qatar (150 tonnes each in 1984 and 1985 valued at Rs. 78 million) and Jordan (from 90 tonnes valued at Rs. 156 million to 246 tonnes of value Rs. 65 million)

(Economic and Commercial News 18(32), 1988, 7-8)

229 Indian cashew being priced out

The "high price" for raw cashewnuts fixed at Rs. 15.48 per kg (including sales tax) by the Kerala Government has 'resulted in Indian cashew kernels being outpriced in the international market.

Brazil and East African countries are the major beneficiaries whose sales price for raw cashewnuts are Rs. 5.85 and around Rs. 13, respectively, in the international market.

The Indian exports of cashew kernels during January-February 1988 registered a sharp fall of 27 per cent over the same period last year. They were put at 4,001 tonnes against 5,492 tonnes in 1987. The export earnings also declined by 31 per cent to Rs. 32.81 crores.

The cashew exports to the US India's major market and the world's largest consumer, during the period were 477 tonnes, which was only one-fourth of the quantity exported in the same period last year. In contrast, the Brazilian exports to the US was 3,000 tonnes.

The exports were also lower during the same period to Australia, the UK, Canada, FRG, New Zealand and West Asia. However, exports improved in the case of Soviet Union, Hong Kong, the Netherlands, Singapore and Japan.

Exports in the financial year 1987-88 (April-February) were also less, both in quantity and value at 35,666 tonnes and Rs. 312.78 crores against 40,318 tonnes valued at Rs. 321.43 crores. The percentage decline was 11.5 per cent in quantity and 2.6 per cent in value.

According to the exporting community, the raw nut prices fixed by the

Kerala Government would render Indian product "highly uncompetitive" in the international market vis-a-vis cashew kernels of other origins, and also other competing edible nuts.

There was also sharp fall in import of raw cashewnuts in February. The total-imports during January-February this year were only 74 tonnes compared to 3,779 tonnes last year.

(Financial Express 9 July 1988, 4)

230 Ginger export

Year	Quantity (in tonnes)	Value (in lakh Rs.)
1985-86	6,816.27	1089.35
1986-87	4,843.21	571.16
1987-88	2,404.00	430.00

(Spices News Letter 22(5), 1988, 3)

231 Export duty on coffee abolished

Keeping in view the interests of small growers, the Centre today abolished export duty on coffee with immediate effect.

This step will result in a revenue loss of Rs. 10 crore. A notification exempting coffee from export duty was issued today.

Some years ago coffee carried a duty of Rs. 10,000 per tonne. It was gradually reduced and stood at Rs. 1700 per tonne this year. Early this month the duty was reduced from Rs. 1700 to Rs. 1000 per tonne. The duty was estimated to yield Rs. 17 crore this year. After the reduced duty the revenue yield was expected to be Rs. 14 crores.

So far Government has collected Rs. 4 crore as export duty, an official spokesman said.

There are about 1,17,185 coffee growers in the country. Of these 1,09,701 are growers with less than four hectares and classified as small growers.

The Government was of the view that a step like abolition of duty would boost the small farmer and enable him to invest more, the spokesman said.

(Deccan Herald 27 August 1988, 1)

2 Exports of apples and fruits

The value of apples and fruits exported during 1984-85, 1985-86, 1986-87 and April 1987 - December 1987 is as follows:

Value: Rs. in Crores

Year	Value
1984-85	22.79
1985-86	24.30
1986-87*	25.00
1987-88*	26.70

(* April 1987 - December 1987) Provisional.

Exports of fruits is freely allowed. To increase exports, cash compensatory scheme at the rate of 22% by air and 10% by surface transport is presently allowed besides import replenishment of 10%.

(NAFED Marketing Review 18(3-4), 1988, 25)

3 Mango export rises

The export of mangoes during April-January 1988 was 14,900 tonnes as compared to 10,500 tonnes during 1986-87, thus showing an increase of around 4,400 tonnes within a period of ten months only. It had, however, gone down in 1986-87 as compared to 16,460 tonnes exported during 1985-86.

This was stated recently in Lok Sabha by Minister of State for Commerce, Mr. P.R. Dasmunshi in reply to a question.

(Economic and Commercial News 18(22), 1988, 6)

4 Fruit exporters can apply for monthly CCS

The office of the Chief Controller of Imports and Exports has allowed fresh fruit and vegetable exporters to make applications for cash compensatory support (CCS), on a monthly basis, in addition to the quarterly/half yearly/ yearly frequencies.

This decision was taken following representations to the Agricultural and Processed Food Products Export Development Authority (APEDA) by exporters regarding denial of the monthly facility, which had automatically stood withdrawn in view of the policy provisions regarding exporters claiming Rep. benefits.

(Financial Express, 23 June 1988, 8)

235 Indian molasses export

Although the government had allowed export of five lakh tonnes of molasses from the country last month, sugar mills have not been successful as yet to get buyers for the commodity in the international market.

The current price for the sugar molasses in the international market is only around $ 50 a tonne, whereas the minimum export price of molasses for sugar mills work out to over Rs. 900 a tonne because of transport cost of Rs. 600 per tonne from UP to Kandla and storage cost of Rs. 200 per tonne .

Sugar mills will be incurring a loss on export of molasses at $ 50 a tonne as there is no cash compensatory support or other benefits for export of this commodity, industry sources point out.

Sugar mills are finding it difficult to store molasses, as the crushing in the current season is in full swing. Sugar mills are already carrying a stock of two lakh tonnes of molasses from the last sugar season.

The molasses output during the current sugar season is expected to be about 42 lakh tonnes as against the last year's production of only 36 lakh tonnes.

With no international buyers for molasses and industrial alcohol, glut situation in the country for both the commodities is going to be severe in the coming months, the source say.

(The Economic Times 25 July 1988, 6)

IMPORT

236 R & D Cess

The Government has decided to impose a five per cent cess on all payments for the import of technology from December 1, 1987. A Finance Ministry press release said that the levy known as research and development cess has been notified under the Research and Development Cess Act, 1986. Under this the government has formed a venture capital fund which will come into force from December 1, 1987.

(Indian Food Packer 42(2), 1988, 95)

237 Cloves imports under OGL

The Commerce Ministry has clarified that the open general licence (OGL) import of cloves and cinnamon was allowed in the new import policy, as it was found more advantageous than canalisation through public sector agencies.

In a communication to Mr. Mullappally Ramachandran, a Lok Sabha member from Kerala, the Ministry said canalised imports would henceforth be restricted to items of bulk nature or where the actual users are very large.

The Ministry underscored that OGL imports of cash crops generally produced in Kerala would not hit the interests of the growers as the actual quantity allowed to come in through these imports would be "limited".

According to the Ministry, import of rubber, copra and coconut oil continues to be canalised. These items cannot be imported by actual users under OGL.

Copra and coconut oil can be imported only by the State Trading Corporation or the Hindustan Vegetables Oils Corporation.

(Financial Express 26 July 1988, 7)

Import of almonds

Following the understanding reached recently between India and the United States, larger imports of Californian almonds have become almost certain. India has increased the value of import on a global basis to Rs. 26 crores from the earlier level of Rs. 18 crores.

The share of the US in the Indian market has been about Rs. 5 crores per annum and it is likely to go up significantly with the enhancement of the import value. Until 1981, India used to import almonds liberally under the open general licence, but because of foreign exchange considerations and political pressure, imports had to be restricted. Even new almonds are considered a luxury in this country.

According to reports received from the office of the US Trade Representation, India would lower its customs tariff on almond kernels from $ 4.18 to $ 3.73 a kg and also that the tariff on unshelled almonds would be maintained at the current level of $ 2.09.

The edible nut market circles perceive the current change in Indian policy as a victory for the persuasive efforts of USA. Last year, America produced a record almond crop of 297,000 tonnes out of the global output of around 425,000 tonnes. In the current year 1988, the US crop is forecast to be around 2,60,000 tonnes.

With such a large crop, prices of almonds have considerably eased. No wonder then that the US has identified India as a potentially larger market and succeeded in opening the gates to imports a little wider.

(The Economic Times 11 June 1988, 3)

Almond import licence

Each eligible dry fruit licensee will be granted an additional licence for import of almonds only valued at Rs. 20,000 irrespective of the value of the dry fruit licence to which he is entitled.

Announcing the modification in the import policy, a public notice issued by the office of the Chief Controller of Imports and Exports said, "at the time for applying for a licence in the second year of the current policy period, the importer will be required to furnish evidence of having made exports to the extent of 50 per cent of the value of the licence applied for".

The licence applied for will include both dry fruit licence as per sub-paragraph (W) and almonds licence as per new sub-paragraph (RA) in chapter 13 of the import policy under para 155.

Another public notice said that additional licences issued to export houses/trading houses after April 1988 will also be valid for import of almonds up to five per cent of the value of the licence and within the overall value of the licence.

(Financial Express 29 July 1988, 4)

240 Cultured shrimp production

Japan, India and Bangladesh, which dominated shrimp production and trade in the past have reportedly been adversely affected by the "cultured shrimp boom". The impact of the heavy supply of cultured shrimp from Equador, China and Taiwan is being increasingly felt in the American and Japanese markets, according to the seafood newsletter of the Marine Products Export Development Authority.

One of the major developments leading to substantial increase in shrimp production on a global level in the past three to four years has been the boom in shrimp production through culture methods. Commercial production of shrimp through culture methods in 1987 was estimated at about 350,000 tonnes, which was nearly double 1984 production level.

The share of cultured shrimp in the total world output of shrimp is now about 18 per cent as against two per cent in 1976 and five per cent in 1980. Asian countries account for more than 80 per cent of the world cultured shrimp production.

One of the important schemes under the fisheries development programme in the country is brackish water prawn (like large shrimp) culture. In spite of best efforts, "progress is not satisfactory", a recent official review said.

The study pointed out that the technology gap in this important sector of fisheries is very wide as some countries like Taiwan produce 20 tonnes of prawn per hectare annually whereas in India it is still 500 kg to one tonne per hectare.

Data compiled by the United Nations Food and Agriculture Organisation showed that India continued to top the list of major shrimp producing countries in 1986.

Shrimp production by four of the five largest producers - India, China, the US and Thailand showed a declining trend in 1985 while Indonesia was the only major shrimp producer which registered a marginal increase.
(Financial Express 29 June 1988, 5)

241 Biscuits manufacturing

With the steady increase in the cost of wheat and other inputs like sugar and vanaspati, biscuit producers have become apprehensive about the future of the industry. The biscuit manufacturing industry finds itself in the midst of a virtual struggle for survival.

The president of the Federation of the Biscuit Manufacturers of India, Mr. Sharad Chauhan, in a recent press conference in the capital, sounded pessimistic about the growth prospects of the industry. He sought to remove the general impression that biscuits is a luxury item consumed in urban centres.

Quoting the studies of the National Council of Applied Economic Research, he said that as much as 55 per cent of biscuit consumption is in rural areas. About 70 per cent of consumption is by the income group below Rs. 1500 per month. In India high priced fancy biscuits account for only 10 per cent of production. The annual per capita consumption of biscuits in India is low (700 g against 10-15 kg in developed countries). The industry feels that with the right kind of developmental and fiscal policy, the per capita consumption in the country could be raised to two kg, by the end of this century. To achieve this objective the annual growth rate of the industry's production (currently five per cent) will have to be doubled. Two major problems stand in the way. One, old machinery, and, two, burdensome fiscal levies. Fiscal levies on material inputs and final product taken together account for 40 per cent of the price of biscuits. The industry feels that even the withdrawal of the current excise duty on biscuits of 10 per cent may go a long way in reducing prices.
(Beverage and Food World Annual 15(1) 1988, 93)

242 Oil consumption for edible purposes and industrial uses during 1984-85

	(in lakh tons)
Edible purposes	45.60
Soap	5.00
Fatty acid	0.50
Paint and Lubricants	2.00
Export in terms of oil	1.00
	54.10

(Oils and Oilseeds Journal 38(7-12), 1986, 14)

243 Major development strategy for food processing outlined

Food processing Minister Jagdish Tytler on Saturday outlined a major development strategy for ushering in a "brown revolution" for absorbing surpluses in agriculture and allied sectors, and bringing about rural industrialisation.

Addressing a meeting of experts to discuss the work plan of the new Ministry, Mr. Tytler said major plans of the strategy are an imaginative licensing policy, induction of modern technology into the food processing sector, fiscal reliefs to encourage food processing, storage and packaging.

Mr. Tytler made it clear that all sectors of the industry - small-scale, cottage and village industries, co-operatives as well medium and large sectors - would be encouraged to invest in the food processing industry in view of its importance and recognition as a "sunrise industry"

Each of these segments have a distinct and definite role to play, he said.

Stating that an effective cold chain is of utmost importance for the development of a strong food processing industry, Mr.Tytler said it is necessary to nurture and give special treatment for the growth and modernisation of cold storage and refrigeration industries.

For induction of modern technology, he suggested that small and large units tie up with the best companies of the world for getting state-of-the-art technology in the food processing sector, starting right from production of seeds.

"In fact, we may even think of allowing a free flow of investment in this sector without reservations on the source of these funds", he said.

Similarly, it is necessary to treat the packaging industry as a high priority industry.

Underlining the need for a new marketing philosophy and strategy to tap the domestic and export markets, Mr.Tytler said a cluster approach is possible for small and medium industries on the "Amul pattern".

Small manufacturers could be the supply points for larger centralised units. Major co-operatives or state level organisations such as NAFED could also be utilised for this purpose.

All this development had taken place in a span of less than five years, he said.

Mr. Tytler said it is unfortunate that although India ranked among the largest producers in milk, butter, groundnut, sugar, rice, wheat, potato, fish and eggs, the processing industries based on these raw materials are highly underdeveloped.

In fact, in actual handling of only one area - fruits and vegetables it is hardly 1.5 per cent of the total output.

In terms of principal export of the world, India's share in fruits and vegetables is only 1 per cent of the overall exports, fish represents 3 per cent, and meat and meat products 0.51 per cent.

Against these figures, Brazil's estimated production of orange juice concentrate alone is 600,000 tonnes, of which 550,000 tonnes are exported. Even the economically backward Philippines exports canned pineapple worth more than Rs.10 million annually.
(Deccan Herald 24 July 1988, 14)

TRADE INFORMATION

44 New division for food industry equipment

A food industry division has been set up by the Confederation of Engineering Industry (CEI) to look after the needs of the food processing industry by promoting production of equipment connected with it. The need has arisen as a result of the vast potential the industry holds for the engineering sector.

The food equipment industry includes some large and medium units and a large number of small units especially in the dairy equipment field. A phenomenal rise of Rs. 220 million in the demand for diary equipment in 10 years (from 1970 to 1980 speaks volumes of the scope of the industry.
(Chemical Products Finder 7 June 1988, 259)

45 Cashew board

The centre proposes to set up a national cashew board at Quilon on the pattern of commodity boards like the Rubber Board and the Spices Board, the Union Minister of State for Information and Broadcasting, Mr.S. Krishnakumar, said on Saturday.

He further said the proposed board would handle matters connected with cashew cultivation, processing, marketing and welfare of the workers in the cashew industry.
(Financial Express 24 July 1988, 1)

46 New pricing policy for edible oils

A new pricing policy for edible oils to boost indigenous production and cut imports is now under the active consideration of the Government.

The main planks of the proposed policy are a phased raising of the public distribution system (PDS) prices, prescription of a band of prices beyond which the consumer prices will not be allowed to fluctuate, and market intervention by the National Dairy Development Board (NDDB) through imported and domestic stocks for maintaining the prices within the hands.

Under the new policy, the public distribution system prices are proposed to be raised gradually over the next two to three years to equal the support price of domestically produced oil. A band of prices with maximum and minimum limits for different oils and for different months will be prescribed by the Government. In case the price goes beyond the upper limit of the band, the Government would release the oil to bring it back within the band. Similarly, when the price falls to a level lower than the minimum limit of the band, the Government would buy oil from the open market to push the prices within the band.

The task of fixing the band of prices, which will be fair both to the consumer and the producer, is proposed to be entrusted to the Chief Economic Advisor in the Finance Ministry.

The price band to be prescribed for each oil year, will take into account inflation and the cost of carrying the stock over to the lean season.

It is proposed that NDDB will buy oilseeds from the open market on a commercial basis. The price at which NDDB will buy the oilseeds will not be less than the support price fixed by the Government. At the same time it will be sufficiently high to give an incentive to the farmer.

This, it is felt, will encourage the farmer to improve the production of oilseeds, particularly, in years of a good crop when the trade tries to depress the prices.

The PDS prices of edible oils are proposed to be raised as it is felt that they are much below the economic prices. The low prices have pushed up the consumption and resulted in higher imports. It is, therefore, felt that these prices should be gradually raised to equal the cost of edible oil produced domestically and calculated on the basis of the support price declared by the Government.

It is also pointed out that the consumption of edible oils is high among the richer classes compared to the lower classes which depend on the PDS. The urban rich class is estimated to have a per capita consumption of about 43 g of edible oil per day against 10 g per day by the rural and urban slum dwellers.

It is also pointed out that despite heavy imports and their release at controlled prices, the edible oil market has remained one of the most speculative markets. This can be overcome only through an integrated pricing and marketing intervention policy which will increase production and curb consumption. *(Financial Express 29 June 1988,12)*

247 Centre approves setting up of NCTI

The Union Government has approved the setting up of a National Centre for Trade Information (NCTI) and the process of implementing a computerised trade information system is expected to start soon.

Disclosing this, Dr. K.Subramanian, Additional Director, National Informatics Centre, said that though it had taken the government 15 years to accept the concept of NCTI, of late some significant progress had been made in the fields of trade information.

A recent attempt had been to design a computerised information system for the foreign trade division of the Ministry of Finance covering general country information, economic indicators, information on domestic sectors, commodity status joint ventures, and the like. Besides a joint venture cooperation programme between the European Community (EC) and India for the sharing of information and formulation of standards is in the advanced stage of implementation.

Plans are also afoot to set up a special cell for information technology within the Bureau of Indian Standards (BIS) to deal with the important aspects of the impacts of information technology standards, Dr.Subramanian added.

Providing details of the proposed trade information centre, Mr.P.V.Rao, Chief of the Trade Information and Statistics Division of TDA, and also in charge of giving the finishing touches to NCTI, said that this project estimated to cost about Rs. 10 crores envisaged installing a central computer terminal and networking all the international TDA centres, consulates and embassies, and the Indian Trade Centre at Brussels.

Discounting fears of TDA being rendered redundant with NCTI coming up, Mr. Rao said that the Gotan committee report itself had recommended that TDA should specialise in trade information and as things stand now the proposed body would function under the banner of TDA.

At present TDA's operations extended to merchandising, trade information and research and analysis.
(Financial Express, 9 July 1988, 12)

248 Richest man in the world

The richest Americans this year are the members of the Mars family of Las Vegas who are in the food business with assets of $ 12.5 billion.
(The Economic Times, 26 August 1988, 14)

249 Incentives soon for food processing industries

The Finance Ministry is expected to come out with certain "concessions" for the food processing industries.

This was stated by the Minister of State for Food Processing Industries, Mr. Jagdish Tytler, in reply to Mr. K. Kunjambu and supplementaries in the Lok Sabha on Thursday.

Agreeing with members that the country had a vast potential for export of fruit and vegetables, he said it would be one of the main thrust areas of his newly created department.

Mr.Tytler said around 25 per cent of the yearly fruit produce of 23 million tonnes and 43 million tonnes of vegetables went as "post harvest handling loss".

Efforts would be made to reduce this loss substantially he added.

(Financial Express, 5 August 1988, 4)

FOOD REGULATION, QUALITY CONTROL AND HYGIENE

250 Rapid detection of Aflatoxins in poultry feed/ingredients

A simple, economical, reliable and rapid method, Pressure Mini Column Technique (PMC) has been developed. The method uses a glass syringe packed with certain chemicals which bind specifically to the aflatoxins and can be visualized as a blue flourescent band under UV light. The whole process of sample analysis takes just one hour and the minimum detection limit being 50 ppb for feed and 20 ppb for feed ingredients. The method works out considerably cheaper than the conventional TLC method and is quite rapid.

For further details contact: Dr. Beedu Sashidhar Rao, Taulava Bio-Analyticals 1-7-1072/5/B, RTC Cross Road, Musheerabad, Hyderabad 500 020

(Poultry Guide 25(7), 1988, 90)

TRANSFER OF TECHNOLOGY AND NEW INDUSTRIES

251 NCDC clears nine co-op processing projects

The National Cooperative Development Corporation (NCDC) has cleared nine new projects in the field of cooperative processing with a total investment of Rs. 149 crores.

An official release said on May 25, that these projects related to copras processing in Kerala, a vanaspati plant in Maharashtra, an integrated rice bran oil project, potato processing plant and a spinning mill in Punjab, a distillery unit in Maharashtra and modernisation or expansion of two cooperative sugar factories in Punjab and one in Maharashtra.

NCDC will provide assistance of Rs. 111 crores for these projects. These decisions were taken at a meeting of the NCDC board which was presided over by the Union Minister of State for Agriculture, Shri Shyam Lal Yadav.

The board also decided to take up research and development programme for rice bran for augmenting the base of indigenous edible oil production.

(Nafed Marketing Review 18(5-6), 1988, 22)

52 Goodricke to make instant tea

Goodricke group limited's long-standing bid to enter the high value segment of the international tea market has got off the ground following clearance of the company's bid for acquisition of a pilot plant for manufacture of instant tea from the Tea Research Association (TRA), Jorhat. Problems that had delayed shifting of the plant from its original location to the company's premises have been resolved and the unit is now being installed at Danguajhar tea estate.

According to the company's managing director, Mr. S.K. Bhasin, the pilot plant, purchased from TRA, was likely to become operational in the next few months, and test marketing of the product in the United States and Britain was likely to commence by the end of the year. The Rs. 50 lakh pilot project would be followed by a Rs. three crore full-scale plant which was expected to go into commercial production by end - 1989, he said.

Goodricke has identified that the United States as its major market for export of instant tea. Recent reports have, however, indicated a declining trend in the demand for the product in that country, thus forcing the company to revise its marketing projections, Mr. Bhasin said. In the initial stages, the company is projecting exports of around 1.5 lakh kg of instant tea per annum primarily to the US and Britain, at a bulk average price of Rs. 140 per kg. inclusive of all incidental expenses.

(The Economic Times 12 July 1988, 4)

53 Indo-Japanese tie-up in shrimp processing

An agreement has been signed between Baby Marine Group, a Kerala-based firm, with Cosmos Food Limited of Japan for setting up a joint venture for processing and export of frozen dry shrimps. The project entails import of new technology from Japan and will be 100 per cent export-oriented.

The Union Minister of State for Commerce, Mr. P.R. Dasmunshi, who had extensive discussions with Japanese trade Ministers and representatives of leading business establishments during his recent visit to Japan, disclosed that Japanese trading giants, Mitsui, Mitsubishi, and Marubeni have agreed in principle to cooperate with Indian firms in the areas of shoe-uppers, marine products, petro-chemicals, garments, engineering plastics and pharmaceuticals. Representatives of these companies informed the Indian Minister that they would soon be sending a team to India to hold further talks on the nature of their respective investments. Mr. Dasmunshi said that a meeting with Indian exporters of marine products to formulate the strategy for maximising the sale of sea foods to Japan would be held in August.

According to the Minister, India would have a good scope for exporting mangoes to Japan after a new heat treatment plant is commissioned in India. The Japan International Information Agency is said to be considering a proposal for technical and financial assistance from Japan for development of prawn hatcheries in the coastal regions of India. The proposal, likely to be cleared by JICA soon, came up for discussion during a meeting between Mr. Dasmunshi and the Japanese Vice Minister for Agriculture, Forestry and Fisheries.
(Economic and Commercial News 18(33), 1988, 2, 5-6)

254 Commercial production of iron-fortified salt

India's first iron fortified salt project (IFSP) is all set for going commercial. Two trial runs have already been conducted and according to the company's (Tamil Nadu salt corporation) chairman, four laboratory tests have given a clean chit to the product last month.

The project needs at least Rs. 27 lakhs working capital. Upon its request, a high-powered state level committee had already recommended release of Rs 10 lakhs by the State Social Welfare Board and another subsidy from the Centre to the tune of Rs. 13.5 lakhs - equivalent to three months subsidy. He stated that within six-weeks of receipt of these amounts the corporation will commence commercial production.

This UNICEF funded project is coming up in Vallikonam in Ramanthapuram district in Tamil Nadu. With a capital cost of Rs. 25 lakhs, the plant and machinery cost of Rs. 5 lakhs is borne by the UNICEF and Rs 9 lakhs by the Food and Nutrition Board of government of India towards building, land and others.
(The Economic Times 14 July 1988, 10)

255 Pineapple juice plant opened in Tripura

The country's first pineapple juice concentrate plant was inaugurated at Nalkata in Tripura on Friday by the Union Minister for food and civil supplies, Mr. Sukh Ram.

Set up at a cost of Rs. 3.75 crores by the North Eastern Regional Agricultural Marketing Corporation Limited (Neramac), a government of India enterprise under the department of food, the plant has a capacity of producing between 152 to 200 kilograms of pineapple juice concentrate per hour, depending on its brix content. To maintain this level of production, the unit would require raw materials input of around 2,000 pineapples per hour.

Located in the heart of Tripura's pineapple and orange growing belt, the unit will provide direct employment of 500 persons and will benefit thousands of small growers. The plant is equipped with state of the art machinery imported from USA, Sweden and Italy and was completed in a record time.

The manufacturing process entails concentrating the fruit juice in one step from an initial brix. 11 to 65 degrees with heat contact time of less than one second to ensure the finest quality concentrate. The sterilised concentrate is then aseptically packed in metallised plastic laminated bags.
(The Economic Times 12 June 1988, 8)

256 Mazda packaging unit

The highly sophisticated computer controlled co-extrusion five-layer blown film line of the Mazda Packaging, built by world leaders Reifenhauser, West Germany, has gone on stream. This is the only company in the country, which is equipped with five extruders instead of four, giving it an unparalleled versatility in film composition. The company has already received a number of orders for this Mazdapac film, which is expected to replace conventional packaging materials like tin, glass, polypots, etc. for edible oils, ghee, lubricants, fruits, cosmetics and industrial products.
(Industrial Products Finder 16(10), 1988, 73)

PERSONALIA

Nil.

I N D E X

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RAW MATERIALS

257 Sunflower cultivation

The Minister of State for Agriculture stated in Rajya Sabha that the area under sunflower cultivation in the country is estimated at around 7 lakh hectares.

Vigorous efforts are being made to increase the production of sunflower through implementation of Centrally Sponsored National Oilseeds Development Project in the States of Karnataka, Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat and West Bengal where there is potential for development of the crop.
(The Oils and Oilseeds Journal 39(1-6), 1986, 40)

258 Bulgarian apple varieties

The Union Minister of State for Food Processing Industries, Mr. Jagdish Tytler said that his Ministry is examining the possibilities of growing high yielding varieties of apple plants received from Bulgaria which would increase the apple production four-fold in the three years.

Speaking at a function after inaugurating the fourth bread plant of Delhi unit of the Modern Food Industries Ltd. here on Tuesday, Mr. Tytler said that the plantation of these new varieties of apple would be encouraged to get more production.

In this connection, Mr. Tytler referred to the problems of apple growers of Himachal Pradesh and Jammu and Kashmir who have to sell their produce at a throwaway price due to non-availability of cold storage and processing facilities. He said that his Ministry would do its best to help the growers by providing them necessary facilities.
(Financial Express 24 November 1988, 7)

259 A new edible oil from flax

Biotechnica (Canada) and Australian CSIRO are collaborating to develop a new edible vegetable oil from flax seed. Under a proposed joint venture the partners will develop varieties of flax which produce oil similar to sunflower or corn oil. By the mid of 1990s edible oil flax may be grown on several million acres as an alternative crop to wheat.
(Chemical Weekly 34(9), 1988, 78)

STORAGE AND INFESTATION CONTROL

260 Zero-energy cool chamber for fruits and vegetables

A zero-energy cool chamber developed by the Indian Agriculture Research Institute, New Delhi, has emerged as the poor farmer's refrigerator to help them in cold storage of fruits and vegetables.

October 16 - 31, 1988.

It works on the simple principle of "evaporative cooling". When unsaturated air comes in contact with a wet surface, water evaporates and produces a cooling effect. The chamber can be constructed using easily available raw material like bricks, riverbed sand, gunnybags and bamboo. For the supply of water, storage tank should be provided inside the chamber.

The walls of the cool chamber are of a double layer of bricks, the two layers being 7.5 cm apart, while the floor is made of a single layer of bricks. The space inside is filled with wet riverbed sand. A bamboo frame covered with the grass 'khus khus' covers the top of the chamber.

The chamber, which is estimated to cost around Rs. 250, should be constructed in a shed to keep away from direct sunlight but must be well-aerated.

Crates of fruits and vegetables are kept in the chamber and covered with a polyethylene sheet to prevent water from falling on them. Water is sprinkled twice daily on the bricks, sand, khus-khus mat and bamboo frame to maintain the required temperature and humidity.

The average maximum temperature of the chamber is lower than the outside temperature. Periodic disinfection of the chamber by spraying with chemical helps to prevent any fungal attacks.

The low-cost chamber, can be installed temporarily at any site like fields, packing stations, railway stations and whole-sale markets.

With a little modification, it can also be used for mushroom growing, fermentation, short-term storage of eggs, bread, butter, cheese and milk.

(P.T.I. Science Service 7(20), 1988, 2-3)

61 Keeping mushrooms fresh

People who understand the culinary delights of the common mushroom also know how difficult it can be to keep it fresh. The young, freshly-picked mushroom with its white flesh and "button" appearance is considered more appealing. Mushrooms can become old within hours or days. Cold mushrooms do not mature as fast as warm ones, so growers tend to vacuum chill them to reduce the temperature as quickly as possible. The vacuum evaporates moisture on the skin, rapidly drawing off the latent heat.

Cooling, however, does not stop the skin from turning brown which is due to a chemical reaction between phenols and the enzyme, tyrosinase. If the mushroom is bruised and the cellular compartments are damaged, which also occurs with ageing of the mushroom, then the two chemicals come together. The enzyme then catalyses the oxidation of the phenols to produce reddish pigments that interact with each other to produce brown melanin, which makes an old mushroom look so unappetising.

In addition to cooling, therefore, mushroom packers have tried to design punnets that limit the amount of oxygen reaching the mushrooms. A complete lack of oxygen, however, stops the mushrooms from respiring, which also shortens their shelf life. Putting holes in the plastic film covering the mushrooms limits the amount of oxygen without stufling them completely, but then water vapour builds up.

Kerry Burton, a horticulturalist from the Institute of Horticultural Research at Littlehampton, has found that mushrooms keep fresh longer in punnets wrapped in porous film which lets gases such as oxygen pass through.

A patch of "microporus" film of a few square centimetres allows just enough oxygen into the punnet to let the mushrooms breathe, but not enough to oxidise the phenols. The film also lets just enough water vapour pass through without the mushrooms drying out completely. Burton found that the film keeps the mushrooms white and buttoned-up for several days longer than punnets wrapped in ordinary film with perforations.

(New Scientist 117 (1597), 1988, 38)

262 Doubling seed storage life

A team of scientists at the University of Gujarat, Ahmedabad, has found a way to double the average storage life of the seeds of certain crops. The technique involves storing the seeds in polythene bags at low temperature and later subjecting them to a chemical called gibberelic acid (GA-3). The GA-3 solution can improve the performance of aged seeds under both laboratory and field conditions. Peanut seeds can be stored for longer duration at 10 degrees celsius if the kernels are stored intact in pods. The studies have shown that the seed storage is most effective when the seeds are kept in polythene bags of thickness ranging from 300 to 700 guage.

(Documentation Bulletin 71, 1988, 11)

263 Frozen shelf-life of meat extended

A longer frozen life for meat is promised by a new process developed by PMC's Marine Colloid Div. (Phila.,USA). The process has been patented (US Pat 4,196,219) and provides a way to extend the storage life of frozen pre-cooked meat, poultry, and fish, through the use of an edible coating made with carrageenan, a seaplant extract.

The carrageenan coating works to reduce moisture loss in the frozen consumer food product. The company is keen on licensing the technology.

(Chemical Weekly 34(1), 1988, 81)

264 Subsidy for storage bins purchase in UP

The Agro Industries Corporation of Uttar Pradesh has announced a substantial subsidy for small and marginal farmers to acquire grain storage metal bins, with a capacity ranging from 3 to 10 quintals.

The subsidy for the bins, designed and developed by the Indian Grain Storage Institute (IGSI) under the Union Food Ministry, will be 25 per cent for small farmers and 33.5 per cent for marginal farmers.

This was announced by Dr. Sonelal, Director, the Hapur based IGSI to mark the celebration of the world food day in one of the Institute's adopted villages, Badhola, in Uttar Pradesh.

(Financial Express 21 October 1988, 8)

265 Chitin food uses

Crabs and lobsters are getting a raw deal. The shells of these and other crustaceans are 15 per cent chitin, the second most abundant biological material on earth.

The practical use of chitin is hampered by its insolubility, though it can be acetylated to an acid-soluble derivative chitosan. Potential applications for chitin or chitosan include use as a dietary supplement to sequester cholesterol, a slow release material for drug implants, or a source of red dye. Existing uses include surgical sutures and burn wound dressings.

Zikakis has been studying chitin or ground shells as dietary supplements to stimulate the growth of lactose degrading bacteria in the gut Lactose is the main constituent of whey, a major pollutant and waste product of the cheese industry. If this application comes to fruition, some of the 5000 Mkg of whey disposed of in the USA each year could become a useful nutritional source for animals and humans.

Meanwhile, Canadian scientists have developed a promising water soluble derivative of Chitin: N,O-carboxymethylchitosan, or NOCC. Ernest Hayes of Acadia University in Nova Scotia said NOCC can be applied in a thin film to the surface of fruit and so keep it from oxidative spoilage for up to eight months in cold storage. With colleagues who set up a company, Nova Chem, to develop NOCC, Hayes is applying to the US authorities for approval to use NOCC on fruit that is industrially processed - i.e. washed and peeled before it reaches the consumers.

(Chemistry and Industry 20 June 1988, 377)

266 A new weapon against rice pest from water weed

At the Regional Research Laboratory Hyderabad, scientists have discovered a deadly weapon against rice motn (Corcyra cephalonica), a serious pest of stored grains.

A compound isolated from the extract of the aquatic weed, "water hyacinth", is able to kill the moth at the larval stage at a dose of less than a millionth of a gram.

Most of the larvae became black, exuded their body fluids, and died before reaching the pupal stage.

Even crude extract of water hyacinth showed insecticidal properties. The larvae treated with the extract either died or developed into deformed adults lacking the ability to procreate.

According to the RRL scientists, water hyacinth extract contained sterols that have the potentiality to disrupt the growth and reproduction of rice moth.

Insecticidal potential is the latest in the list of beneficial use of the abundantly available water hyacinth that was once considered a nuisance weed.

(PTI Science Service 7(21), 1988, 5-6)

FOOD ADDITIVES

267 Low-calorie sugar substitute soon in market

A low-calorie granulated sugar substitute called 'Sweet'n Low has been launched in India by IBIS Health based near Tumkur, Karnataka. The brand has an international following in 29 countries around the world and enjoys a market share of over 72% in the USA.

The complete marketing and distribution franchise for Sweet'n Low vests with Pioma Industries. The product will be made available at several shops, including chemists', according to a press release issued here.

(The Economic Times 8 October 1988, 4)

268 New artificial sweetener

CADILA Chemicals will soon be marketing Aspartime, an internationally accepted sugar substitute. It is the first major breakthrough in sugar substitution and has been approved by the US Food and Drugs Administration (FDA) as sweetener for foods such as breakfast cereals, beverage mixes, tea and coffee, chewing gum, gelatine, puddings, dairy toppings, etc.

(Chemical Products Finder 7(4) 1988, 157)

269 Butter flavour developed for micrawave popcorn

Microloc, natural butter flavor Wonf's, a new series of natural butter flavours designed for ultimate flavour performance in microwave popcorn, have been introduced by Felton.

The development of these new flavours is based on Felton's revolutionary new microwave research. The Delta T theory, which specifies the precise carriers, solvents and flavouring agents which will provide maximum flavour strength, stability and integrity in microwave applications.

Microloc butter flavours provide rich creamy, full-flavoured taste and aroma to microwave popcorn: flavour and aroma which remain after popping, when and where you need it most.

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Available in liquid oil soluble concentrated, and paste forms, they are recommended for use in all natural flavoured microwave popcorns at 3.0%.
(*Food in Canada June 1988, 44*)

PROCESSES

270 Milk/juice drink marketed in Germany

A German entrepreneur has succeeded in combining fresh milk with natural fruit juices into a stable homogenus refreshing drink. The drink comprising the two components at a 50:50 ratio is packaged in 500 ml light weight bottles.

It is rich in high value proteins, carbohydrate and calcium and contains 10 important vitamins from 10 different fruits. The drink has successfully undergone long-term marketing trials in Germany and is now being sold nationwide. It is reported to be popular with consumers of all age groups.
(*Chemical Weekly 34(9), 1988, 83*)

271 A better apricot juice by a new cellulase process

A new process developed by USDA for apricot juice will provide a clear apricot juice. At present only a thick, cloudy juice is made from the pulp because it is difficult to squeeze juice from the fibrous fruit.

The USDA researchers have successfully produced a clear apricot juice at the 15 gal (feed) scale by using a blend of enzymes - to break down the cellulose fibres. The juice is then removed and clarified through ceramic filters.

Low cost cellulase ($ 3/lb) has only recently been available in USA from Genencor Inc. This has made possible the commercialization of the above process in the near future.
(*Chemical Weekly 34(1), 1988, 81*)

272 Backwards osmosis drains the alcohol out of beer

A British company has found a new way to make low-alcohol beer using a "reverse" osmosis. Elga of High Wycombe, claims its process is cheaper and produces a better-tasting brew than other low-alcohol beers.

In Elga's technique the beer is brewed in tne normal way, and placed in a tank with pure water on the other side of a thin separation membrane. This membrane allows both water and alcohol molecules to pass. When enough pressure is applied to the beer, alcohol and water molecules will pass from it into the pure water, and can be pumped away. Between 40 and 60 per cent of the alcohol is removed in one cycle but the procedure can be repeated to remove as much alcohol as the brewer wants.

Previous methods involved heating the beer to boil off the alcohol The heating involved in this low-temperature distillation process causes chemical reactions between the constituents of the beer which alters its taste. The process is also relatively expensive. With reverse osmosis there is no heating, so the process is cheaper and it preserves the taste.

(New Scientist No.1627, 1988, 34)

273 Microencapsulated fish oil powder

Danochema A/S has developed recently a dry powder microencapsulated Omega-3-fatty acid product (Dry marine PUFA 18:12). The product has been designed for use in the food processing industry and lends itself to the enrichment of dry products.

Microencapsulation enables concentrates of the oil to be presented as a dry stable powder. The product contains 30% fish oil with a ratio between eicosapentanoic acid (EPA) and decosahexanoic acid (DHA) of 18:12.

(Chemical Weekly 34(5), 1988, 82)

274 Dry fruit from cashew

A pilot plant for the production of upgraded dry fruit from cashew has been set up at Palghat by Prof. P.M. Edassery of the Petaline Flower Food Research Station, Palghat. In the process the ripened cashew apples are sliced and cured for one hour in hot antastrin solution. Thereafter, it is dried in the sun and later soaked in sugar solution.

The dried fruits can be a superior substitute to other dried fruits

(The Times of India 26 November 1988, 10)

275 High-yielding cardamom - through tissue culture

Large scale production and continuous propagation of high yielding cardamom saplings by tissue culture technique has been perfected by the Hindustan Lever Research Centre (HLRC).

Scientists of the centre here have succeeded in regenerating 10,000 plantlets of cardamom from a single shoot-tip and in the past one year have supplied 20,000 such saplings to different plantations in the country.

"By the end of the year, another 10,000 plantlets will be supplied to the planters while for 1989, two lakh plantlets are on their way Dr. S. Bhaskaran, Head of the Tissue Culture Department told PTI. The plantlets are supplied when they are three-month old, having a height of about nine to 12 inches.

A necessary requirement for realising the potential of micro-propagation techniques is successful transfer of tissue culture raised shootlets to the soil. "We have achieved a hundred per cent success rate in the transfer of regenerated plantlets to soil after in vivo as well as in vitro rooting for large scale multiplication," Bhaskaran said.

The scientists obtained the shoot tips of cardamom from rhizomes of high-yielding, disease-free varieties. These have given about one to two kilograms of cardamom by dry weight per plant. Hence, there is a potential yield of 2,400 kg per hectare considering that about 1,200 plants can be grown in a hectare.

"Cardamom is conventionally propagated either by seeds or rhizomes. While the seed-raised plants show high variation, multiplication by rhizomes is slow and prone to diseases. Moreover, it is not possible to plant large areas with available rhizome stocks. Under these circumstances, tissue culture provides a faster and better method of multiplication", Dr. Bhaskaran added.

(P.T.I. Science Service 7(21), 1988, 6)

276 Industrial uses of sorghum

The College of Agricultural Technology of the Marathwada Agricultural University has conducted research on sorghum processing to produce value added industrial products. A high quality starch can be produced from hybrid sorghum and the sorghum starch can be converted to sweetners like liquid glucose. I.C.A.R. sponsored a scheme on malting of sorghum. Under the scheme the process has been standardised for malt production and utilization of malt in weaning foods, bakery products and beer.

Processes have also been developed for production of sorghum flakes and sorghum pops for use in snack industry. Pearled/polished sorghum can be utilized in production of various sorghum products. *(University News 9 May 1988, 14)*

277 A sonic food-drying system

A sonic food-drying system developed by researchers at Purdue University and sponsored by the US Development Corporation, Indianapolis, is being installed in a plant in Desert Hot Springs, Calif. The process being scaled up to commercial size is expected to be on line by middle of 1988, with one line for contract drying and another for large-scale development work.

The system uses sonics and heat to blast air past the material to be dried. The result, reports, Jay S. Marks, associate professor in Purdue's Food Science Department, is that product temperatures are relatively low and drying times are up to 4 to 10 times faster than with conventional methods.

Marks reports that pilot units have been able to dry heat-sensitive products that conventional systems cannot handle, such as orange juice and high-fructose corn syrup (HFCS). This technology one day could even benefit processors of hazardous wastes, drugs and chemicals.

(Chemical Weekly 34(9), 1988, 82-83)

58

78 Cyclodextrins to inhibit browning in fruits

Hicks and his colleagues at the USDA's Agricultural Research Service Centre in Philadelphia found that in fresh apples beta cyclodextrin (with 7 glucose units) with or without a side branch was better than alpha or gamma cyclodextrin (6 or 8 glucose units) in retarding browning, which it could do for 1-2 hours. Fruit juice on its own turned brown in 10 to 20 min.

The browning reactions are catalysed by polyphenol oxidase, an enzyme that helps to oxidize simple phenolic compounds in the fruit to quinones, which then react together to form brown pigments. Hicks suggested that the cyclodextrins shaped like hollow cones with the tips cut off, probably act by taking the phenolic compounds inside themselves to form inclusion complexes. The phenolic compounds would thus be protected from the oxidizing enzymes.

The browning could be delayed for several days when cyclodextrins are used in combination with other browning inhibitors, like ascorbic acid (Vit. C). The researchers have recently found that a derivative of Vit. C namely ascorbic acid - 2 phosphate is also a potent inhibitor of browning, acting as a slow-release version of the compound.

While the USDA team has filed patents on the use of cyclodextrins and ascorbic acid-2-phosphate as browning agents, the cyclodextrins are not approved as yet for food use in USA. Hick's research group, nevertheless, has found that the insoluble polymers of cyclodextrins do the trick as well. These polymers can be stirred into fruit juices for a period and then removed by filtration, leaving a product that will resist browning indefinitely.
(Chemical Weekly 34(9), 1988, 82)

279 Cholesterol free egg

With more and more people watching their cholesterol intake these days, eggs are getting a bad name. After seven years of research, a Company, Bon Devite (Lynden, Wash. USA), has applied for a patent on a cholesterol-free egg called Egglite. Patents, trademark and FDA clearance are pending, reports the company.

Egglite is formulated exclusively from food products and contains only one-third of the calories of a hen's egg. This egg substitute has a yolk contained by a sack made of a synthetic poultry membrane. It can be used whole or separated, as a yolk or egg white substitute. The researchers used an edible agent to cross-link the protein of the egg white to the protein of the yolk.

Egglite can be fried, poached, scrambled, cooked over easy, soft and hard-boiled or can be used for basting. The eggs do not come in oval shells, they are instead packed in a plastic cup in which they can be cooked.

(Chemical Weekly 34(9), 1988, 81)

280 Efficient oil extraction - Use of enzymes

The Sarkatcharch Research Commercial successfully used enzymes to facilitate oil extraction. According to Krystyne Sosulski oil extraction from Canola Sunflowerseed, and other oil-rich plant materials commonly involved two stage process of prepressing followed by hexane extraction; each of these processes is preceded by grinding, cooking or flaking, mainly with the object of mechanically dis-integrate the cell walls and release the oil droplets with efficiency.

According to Sosulski the enzymes, commercial products exhibit strong cellulose, hemicellulose, pectinase, gluconase, and amylo-glucosidase activities. Enzyme treatment of flaked seed for three hours, is found to reduce the solvent extraction time by one-half. It is found during research that seeds passed through an expeller, adjusted to fullpress conditions over 90% of the oil is extracted only by pressing alone. Consequently, oil thus left is less than 6 per cent. The solvent extraction of the presscake will not be economically justifiable. This will result in eliminating the step which will help in substantial savings in processing costs.

Enzymes, it is found, will be effective in enhancing the oil extraction rates by either the solvent or expeller system, and best results are obtainable by using mixed enzyme activity.

Conclusion arrived by Sosulski indicates the enzyme use can be successfully introduced into oil seeds processing to obtain more oil than from seeds that are not enzymatically treated. Study shows that enzymes changed the cell wall structure to facilitate oil extraction. The process is helping in not only releasing of more oil but also help in expediting the extraction process faster. Oil thus obtained will be yellower in colour and the meal will be good in quality with increased stability.

(The Oils and Oilseeds Journal 39(1-6), 1986, 90)

281 Mechanical oil pressing and processing system

UNATA, C.V. a Belgian company, has developed a mobile oil-pressing and processing machine which can be operated in any part of the world. The system works like this. A cage or drum filled with well-prepared seeds or fruits is put under a press-plate which is attached to a jackscrew. When the arms of the jackscrew are turned, the press-plate comes down and thus starts exerting pressure on the mass in the cage. A receptacle underneath the cage allows the oil to leak into a bucket. Called the UNATA 4201, the system is very simple and mechanically operated. Coconuts and all types of oleaginous seeds can be pressed in the machine. A modified version of the machine incorporates a hand-driven roller-mill, hammer-mill, nut cracker, coco and cassava-grater. UNATA 4201 is commercialised in Senegal, Ghana, Zaire, Cameroon, Tanzania, Vietnam, Togo and Haiti.

For details, contact: Mr. Yvon Princen, UNATA C.V.,
G. Van Den Heuvelstraat 131, 3140 Ramsel-Herselt, Belgium.

(Asia-Pacific Tech Monitor May-June 1988, 22)

BY-PRODUCTS AND WASTE UTILIZATION

-Nil-

PROCESSED PRODUCTS

282 Powdered beef

The product can be used as a condiment and as stock for preparing soup and meat pie which takes only 2 min to prepare. It contains 60% protein, has high nutritive value, and is a good complement to diet. It does not require refrigeration and can be stored for 10 years. The indicative price is US $ 20/kg fob Mexico City. *(Invention Intelligence July 1988, 191)*

EQUIPMENT AND MACHINERY

283 Liquid/paste filling machines

Elmar Industries, Inc, USA, manufactures a range of piston fillers for the food industry. Fillers from 6 to 72 stations for a wide range of liquid and paste products can be supplied. Containers may be big or small, in plastic, glass, composite or tin. The fillers are available with all accessories including drives, bowl agitators, bowl drains, bowl covers, level controls, etc. Interested parties should contact with specific details regarding product or products to be filled, indicating filling temperature, viscosity, specific gravity, type of container, diameter, height, size of opening, number of containers per minute and the type of seamer or copper used.

For further information write to: Age Technologies Pvt Ltd, 712 GIDC, Makarpura, Vadodara, Gujarat 390010.
(Industrial Products Finder 16(12) 1988, 227)

284 Rotary powder filling machine

Autopack England offers semi automatic and automatic rotary powder filling machine having filling speed of 25 to 100 fills/minute. The machine can handle powder products like milk powder, fruit, salts, spices, free-flowing and non-free-flowing powder products, etc. Product is filled by weight with the help of

microprocessor based control systems. Linear weighing machines are also offered with vibratory feeders.

For more details write to: Panpack Marketing, Panchal House, PO Box 48, Station Road, Anand, Gujarat 388 001

(Chemical Products Finder 7(4) 1988, 128)

285 Aseptic packaging systems

Central India Packaging offers Bowater Aseptic Liquid Packaging Machines and bags. Aseptic packaging is suitable for low and high acid products eliminating processing contamination and allowing transportation and storage at ambient temperatures. Various types of products such as juices, ketchups, pastes and concentrates of fruits and vegetables, milk and milk products, can be packed and stored at ambient temperatures for long time. Pack sizes range from 3 to 250 litres all of which can be filled on the same machine with minor adjustments. Various sizes of filling machines are available for packing 1,000 to 6,000 litres per hour. Fully automatic machines with higher filling capacities are also available. Various types of models to operate on a unit basis or part of an integrated automatic filling line can be supplied. Standard sterilants can be used for cleaning the machines. The aseptic bags come in sizes from 3 to 250 litres.

For more details write to: Central India Packaging Co Pvt Ltd, 3-6-140/2 Liberty Road, Himayathnagar, Hyderabad, Andhra Pradesh 500 029

(Chemical Products Finder 7(3), 1988, 21)

286 Manual form-fill-seal machine

Bhargava Industries offers manually-operated form-fill-seal machines suitable for smaller batch production and for small scale manufacturers. This machine is a link between hand filling of a product is pre-made poly bags/pouches and fully automatic form-fill-seal machine. The machine can pack a variety of products in solid, powder and liquid form. The bags/pouches of various sizes can be packed without changing any part. The change-over time from one size to another is virtually negligible. A range of films e.g. LDPE, PP, HMHD and laminations of different kind can be used for packing. The

packing speed of the machine is up to 1,000 packs per hour depending upon nature of product, packing film and filling quantity.

For more details write to: Bhargava Industries, 92 Marol Co-op Industrial Estate, Mathurdas Vasanji Road, Andheri (East), Bombay 400 059.

(Chemical Products Finder 7(3), 1988, 71)

287 Vertical impulse sealer

Sinecos offers a vertical impulse sealer for sealing of thermoplastic films and laminates. Available with a sealing length of 225 mm, the sealer is suitable mainly for packing of liquids and pastes e.g. soft drinks, fruit juices, oil, ghee, etc. The machine consumes very little power, as the heating takes place only when the sealing is done and cuts off automatically once the sealing is over. It provides a neat, 3 mm wide, leak-proof seal. The foot operated sealer has a built-in-chute on the machine top, which conveys the packed pouches straight into the bin located at the rear of the machine. It features quick-changing, spring-loaded heating element; built-in switch with plug and fuse for the mains supply; and separate indicating lights for heating and cooling time. At the end of the sealing cycle, a buzzer indicates the completion of sealing. The total electronic control is on a plug-in type PCB for quick and easy maintenance.

For more details write to: Sinecos, 134 DDA, Industrial Estate, Okhla Phase-I, New Delhi 110 020.

(Chemical Products Finder, 7(3), 1988, 84)

288 Tray dryer/chilling plant

Grovers tray dryer - available in 12, 24, 48, 96 and 192 tray models - is used for drying pharmaceuticals, chemicals, dyestuff, food products, etc. The dryer can be heated electrically or by passing steam/thermic fluid. The dryer is made in MS, painted outside with MS, SS, fibre-glass or aluminium inside. Also offered is a tunnel type tray dryer in capacities of 96, 144, 192 and 240 trays.

In these dryers, the trollyes are rolled into the dryer one behind the other. Grovers also manufactures brine/water chilling plants in capacities of 1 tonne to 50 tonnes of refrigeration. The chilling plants are compact, easy to operate and trouble-free. These are used by pharmaceutical, chemical and dyestuff manufacturers; plastic and food processing units; paper converters; etc.

For more details write to: Grovers Pvt Ltd,228,Kaliandas Udyog Bhavan, Bombay 400 025.
(Chemical Products Finder 7(3), 1988, 110)

289 Chocolate moulding filler

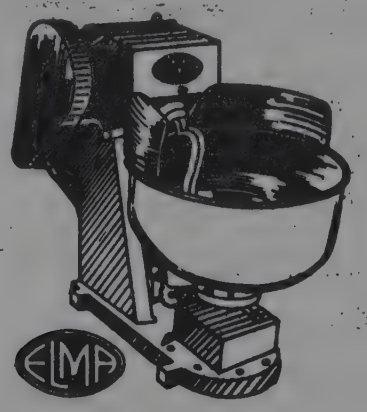
Depositing caramel and other soft centres into chocolate mouldings has been made easier by a machine from Britain. Using conventional equipment, three to five separate operations are involved each requiring complex and costly machinery. The new one-shot depositor from Lamdec, performs the functions of several machines (saving space and energy), and is fully programmable (producing different products easily and quickly). It also offers very low product wastage and greater hygiene. The system employs concentric nozzles, the outer depositing the chocolate while the inner simultaneously deposits the filling. High precision computer control ensures improved product consistency. The system can be tailored to suit a wide variety of production requirements and is readily adaptable for all moulding plants.

For more details write to: Lamdec, The Torrs, Torrs Close, Redditch, Worcestershire B97 4JR, U.K.
(Chemical Products Finder 7(3), 1988, 96)

290 Dough kneading machine

"ELMA" offers a rigid type of Dough Kneading Machine suitable for Bakeries, Hotels, Canteens, Restaurants and Hostels. A very compact design to do a heavy job. Capacity: 10 Kgs to 60 kgs.

Kneading Pan made of 16 guage Stainless Steel Sheets. Fitted with Heavy Duty Standard Best quality motors. Totally enclosed type gear system with pulley drive.



For further details contact: ELMA Industries, A/15, Aaram Society, Vakola, Santacruz (E), Bombay·400 055.
(Industrial Market Bulletin 2(10), 1988, 20)

291 Double arm kneading mixer

Mech Tech has introduced a heavy duty mixer. It consists of two counter rotating blades driven by spur gears. The blades rotate in a rectangular trough contoured at the bottom to form two longitudinal partial cylinders and a saddle section. Mixing action along with shredding, shearing, folding, dividing, re-compounding and smearing is carried out by a variety of blade types and shapes specially designed for the purpose. The blades are pitched so as to achieve end to end circulation. The clearances between the mixer body and blades are low as 5 mm. The blade arrangement can be tangential or overlapping. Tangential blades are run at different speeds with

the advantage of faster mixing due to the constant change of relative blade position. The overlapping type avoid buildup of sticky material on the blades. The most widely used double arm mixer is the Sigma Mixer. This can be used for mixing liquids, solids or a combination of both

Modification of blade's face design can increase effects such as shredding or wiping. The good mixing is due to the shearing action of the blades. Mech Tech's double arm mixer finds applicationsin process industries for mixing materials of different viscosities such as dough, other food and allied products.

For further information write to: Mech Tech,PB No. 9019, Goregaon East, Bombay 400 063.
(Industrial Products Finder 16(11), 1988, 35)

292 Beer pump

A magnetically coupled beer pump, claimed to be the first of its kind for beverage dispensing, is offered by a British manufacturer. Maggy (magnetically coupled) from Totton Pumps, is said to be leak proof as it eliminates the normal shaft seals which would wear down and eventually leak. It is, therefore, almost maintenance free. The magnetic drive also allows the pump to be made of taint-free plastics so it is ideal for the food trade, dispensing liquids, especially beer and lagers. It also features a constant delivery of between 0 and 9.1 litre/min with only a slight fall-off at 13.6 litre/min. Compactness is another advantage, with overall dimensions at 187 x 165 x 296 mm. The motor is a permanent split-capacitor induction type, with integral sealed gear drive, and the power source can be either 240 or 110 V single-phase 50/60 Hz.

For further information write to: Totton Pumps Ltd, Southampton Road, Cadnam, Southampton SO4 2NF, U.K.
(Industrial Products Finder 16(11), 1988, 223)

293 Plastic squeeze tubes

Indo-Dilmun Plastic Industries Pvt Ltd manufactures Thermoplastic Squeeze Tubes. Made of single layer thermoplastics, they are similar in construction to metal collapsible tubes but can retain their shape throughout the life of the products being dispensed. These are handy dispensers, inert and crack free packagings, having an important feature of suckback which keeps the products from

oozing out after application. The merits of these tubes are: their fine style and beautiful printing aid the value of products; with soft quality and durability, they are convenient for packages and transportation; with various specifications, they are available in capacities from 10 to 350 ml, they cost less than other types of tubes; devoid of damages and breakages these tubes are safe and convenient to use. The unit is promoted by a team of non-resident Indians with long stints of experience in various fields. The plant is equipped with specially imported, sophisticated, automatic machinery like press blower (injection-blow moulding machine) and high speed tube decorator. The press blower can process almost all blowable thermoplastics other than PVC, most of which are generally compatible with a number of product formulations, compositions and ingredients. Applications of plastic squeeze tube as a packaging medium are in a host of industries including food stuffs, chemicals, detergents, gums and adhesives.

For more details write to: Indo-Dilmun Plastic Industries Pvt Ltd, Annaram, Jinnaram Mandal, Medak Dist. Andhra Pradesh.

(Chemical Products Finder 7(5), 1988, 8)

294 Filter products for food and beverage industry

Ion exchange (India) Limited offers a wide range of filter products specifically suited for food and beverage industry. They represent Cuno Pacific Pty Ltd. Australia in India for the fine filtration products. Cuno manufactures the widest range of fine filtration equipment available from any one company. The basic filtration methods used by them include: depth, surface and adsorption filtration. Generally the food and beverage industry requires utilisation of all these three methods. Many beverages just require the efficient filtration of particulates from water. Cuno depth filters, BetaPure, Micro Klean III and Micro Wynd II economically service this requirement for the mains incoming water to the manufacturing plant or individual drink dispensing units and ice makers. Should high flow rates be required then the polypropylene pleated BetaFine or Polypro should be used. The Cuno activated carbon cartridges AP117 are used to remove chlorine or offensive tastes and odours from water. In the beverage industry Zeta Plus serves as a

replacement to the hazardous asbestos filter media. The filter media is available to fit all filter presses and is also manufactured in cartridge configuration to fit Cuno fully enclosed, no mess sanitary housings. Cuno's Zetapor Nylon 66 beverage membranes are specifically designed to meet the requirements of the beverage industry. The cartridge combines long service life with efficient bacteria, mould and yeast removal. Cuno filter media is steam or hot water sterilisable for many cycles to obtain maximum service life.

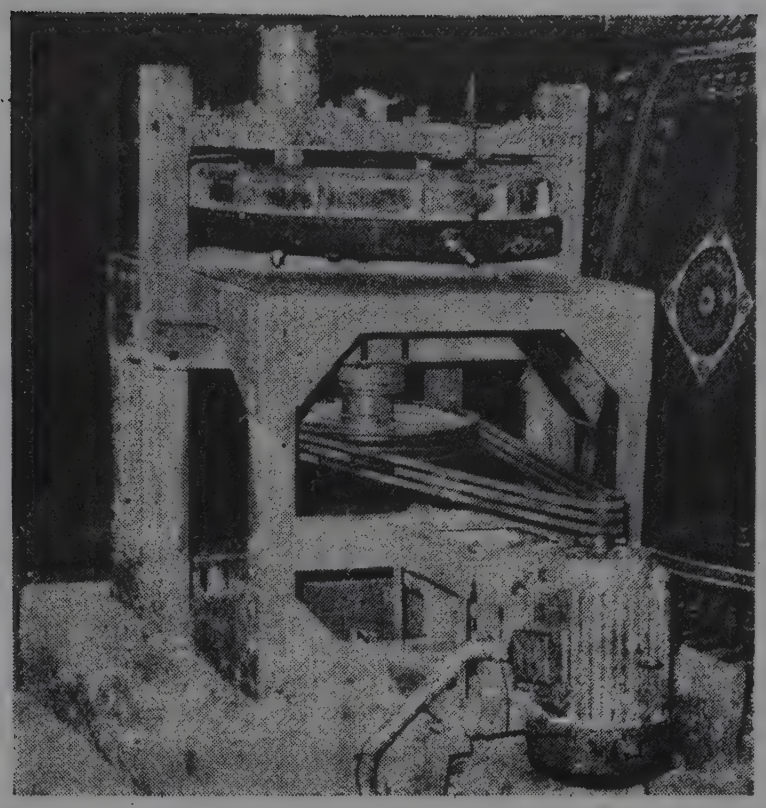
For more details write to: Ion Exchange (India) Ltd, 10 Bengal Chemical Compound 502, Veer Savarkar Marg, Prabhadevi, Bombay 400025. *(Chemical Products Finder 7(3), 1988, 90)*

295 Improved 'poha'/chirawa making machine is more efficient

An improved design of poha or chirawa making machine results in higher production and lesser requirements of space, power and maintenance. The conventional poha making machine consists of a machine frame with a central shaft placed between bush bearings and driven by a line shaft. Due to sudden jerk or impact on the machine, while feeding hot paddy (2 to 3 kg at a time) for making poha, the shaft often breaks at two places either from the neck where the flywheel is fitted or from bottom where it is supported by thrust bush bearing housing. The production remains stalled till the new shaft is fitted.

The conventional machine requires at least 15 x 10 ft space for its line shaft, electric motor, 3 stands, 3 bearing pedestrals, 3 bearings, two extra pulleys and two extra flat belts. The husk which comes out of the screen falls on the bottom causing excess wearing of bush bearings and jamming of the shaft in the bush bearings. This leads to excess load on the electric motor. The machine also vibrates violently while feeding paddy causing wear to the frame.

The new machine requires only 5 x 8 ft space and does not need a line shaft because its 7.5 hp electric motor is attached to its frame with a belt tensioning device and is run by a V-belt.



This results in less friction loss and full power utilization. Its shaft is very small and is fitted with two heavy duty ball bearings, all enclosed in a dust free housing. The life of bearings is more than double than that in conventional machine. Its frame is sturdy and vibration free. The cost factor is also considerably lower because it requires comparatively lesser number of parts and is run by a low horse power motor.

The new machine increases production by 10% and results in a saving of 75% in space, 25% in power and 75% in maintenance.

The improved poha making machine is developed by Shri Harman Seraffin of Spark Electric Works, Gondia 441601, Maharashtra. *(Invention Intelligence July 1988, 153-154)*

296 Flaking machine for cereals and pulses

The flaking of grain reduces the thickness and increases the surface area. These two characteristics combine to improve the water-absorption capacity and cooking quality. Flaking of rice and corn is common practice in the preparation of breakfast snacks. Though the process of flaking is very simple, expensive, high-capacity machines currently used for flaking the cereals. Therefore, there is a great

need to develop a low-cost machine which could be used at the village level to prepare flakes from cereals and pulses. Such a machine has been developed at the Central Institute of Agricultural Engineering in Bhopal.

The machine, consists of a hopper, hollow rollers, gear transmission system and support frame. The hopper is made of galvanized iron sheet and has a plate-type regulator to allow the material to pass through rollers in single thin layer. A cam arrangement transmits an oscilating movement to the hopper for uniform feeding. There are three hollow rollers of 23 cm length made of mild-steel pipe. Two of them have diameters of 11.25 cm while the third one is 8.8 cm in diameter. They have ridges to get a better grip, and so have more of a stretching effect on grain. The surfaces of the rollers are nickel-plated as they are used for food processing. A chain of gears is provided to drive the rollers different speeds in opposite directions. The first set of rollers has the speed of 100 and 200 rpm, and the second set has 200 and 400 rpm. The power is supplied by a 1 hp electric motor through a belt drive to the central roller which has a speed of 200 rpm. The entire structure including rollers, gears, hopper and motor, stands on two mild steel plates of 8 mm thickness. The machine is portable and requires no foundation.

The machine is very simple in design and can be fabricated in any moderately equipped workshop. The cost of the machine is about Rs.4,000 (or US $ 335).

When using the flaking machine for rice, the paddy is cleaned and soaked in cold water for 48 hours. Prior to soaking, Paddy is washed thoroughly to remove any adhering dirt and dust. The water used for soaking is changed every 24 hours to avoid an odd flavour in the soaked paddy. After soaking, the water is drained and wet paddy is roasted for about five minutes or until a few grains are puffed into the roaster. The hot paddy is then passed twice through the flaking machine. During pressing, the husk is separated from the kernel which is then flattened and elongated by the pressure of the rollers and differential speed of their knurled surfaces.

The process details for making soy flakes is also given. The flaking machine has a capacity of 20 kg per hour. In the machine 70 per cent good quality flakes and 30 per cent grits are obtained.

The capacity was found to be about eight to 10 kg per hour. The quality of the flakes was discovered to be really very good with recovery of 70 per cent flakes. Soya flakes also could be prepared.

The machine was also tested using animal power, for use in villages without electricity. The speed of the animal driven system was 60 rpm and by belt-pulley connection 200 rpm was achieved at the central roller. The capacity of the machine remained the same as when it was driven by the 1 hp electric motor without straining the animal at all. *(Appropriate Technology 14(4) 1988, 6-7)*

297 Mill for decorticating sunflower seeds

A handmade disc mill for decorticating sunflower seed has been developed. Parts are made up of wood, metal can be used to make the frame.

It is suitable for removing the husk from the larger, low-oil-bearing on confectionery sunflower seeds. It will lead a high proportion of kernels. It possesses 7 kg seed per hour. It is easier to operate with two persons.

This decorticator consists of three distinct components: a disc mill; a feed hopper and a mounting frame. The mill consists of two cast iron discs, one rotating, one static, with grooves cut into their faces. Seed is fed from a hopper through a hole in the centre of the static disc and the gap between both discs can be adjusted to take different sizes of seeds. When the rotation disc revolves at 150 revolutions per minute the seed is turned in the grooves and decorticated by the shearing effect of their edges. Further information is available with Tropical Products Institute, London.
(Documentation Bulletin No.72, 1988, 35-37)

298 Seed extraction machine developed

An axian-flow seed extraction machine for extracting seeds from vegetable fruits such as tomato, brinjals, chillies, cucumber and water melon has been developed at the Punjab Agricultural University.

The machine works on the principle of "wet-seed extraction" and

uses freshly harvested ripe vegetable fruits. It comprises of a frame feeding chute, primary chopping chamber, crushing chamber and a centrifugal pump. Vegetable fruits are cut into small pieces with blades in the primary chamber and crushed finely by means of blades again in the crushing chamber.

Conveying rakes are provided in two rows on the shaft which moves the pulp and waste material along the shaft length to eject the waste. Three pipes, one on either side and one on the top, cover the machine, sprays water under pressure from a small centrifugal pump.

The sprayed water washes out the seeds and a fraction of the finely crushed fruit material which passes through the openings of the concave screen provided at the crushing chamber and is expelled through the speed outlet. The concave screen is easily detachable and can easily be refixed to suit seed sizes of different vegetables. The machine is operated with a two HP electric motor.

The machine can extract seeds at the rate of 5.49, 3.78, 9.42, 4.68, 3.60, 6.60 and 1.42 kg seeds per hour of brinjal, tomato, chillies, summersquash, watermelon, squashmelon, and cucumber respectively. The maximum seed loss to the extent of 5.86 per cent is in tomatoes, followed by 5 per cent in cucumber.

Over 20 such machines have already been sold in the country and two exported to Vietnam. According to experts, this machine is economical, faster, safe and hygienic for seed extraction from vegetable fruits in comparison to manual practices.
(Economic & Commercial News 18 (40), 1988, 12)

299 Coffee bean peeler

The machine which peels dried coffee beans has a huller shaft, sifter and blower assembly. Model-A can peel 5,000 to 6,500 kg coffee beans in 10-12 hours. It has two blowers and is driven by a 15-20 hp motor, diesel or electric, at 600-650 rpm. The plain type with no sifter costs US $ 1,446; the deluxe type with sifter costs US $ 1,587. Model-B can peel 4,000 kg in 10-12 hours. It has two

blowers and is driven by 10-12 hp motor, diesel or electric at 800 - 850 rpm. The plain type with no sifter costs US $ 1,301; the deluxe model with sifter costs US $ 1,446.

For further information please contact: Nick L. Parpana, General Manager, Parpana Machinery Inc., 1440-46 Antonio Rivera St., Tondo, Manila, Philippines.
(Invention Intelligence July 1988, 190-191)

300 Powder sifter

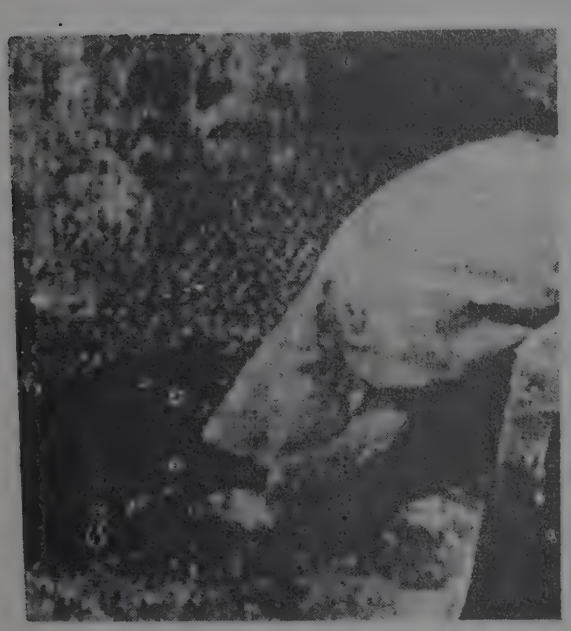
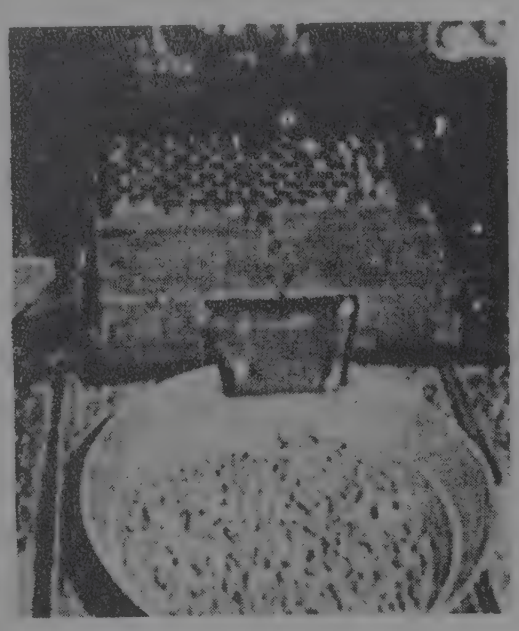
The Rota-Sift is a high capacity, versatile, compact and an economical centrifugal sifter used for the continuous separation of dry or moist materials, even those that tend to ball or agglomerate. It can effectively handle a wide variety of chemicals, pharmaceuticals, foods, dairy products and animal feed. Material is uniformly fed into the cylindrical sifting chamber by means of a feed screw which discharges the material into a rotating helical paddle. Centrifugal force accelerates the movement of the particles against the screen. The rotating paddles, which do not contact the screen, break up soft agglomerates and propel individual particles through the screen. Oversized particles, hand lumps and trash are ejected and pass directly to the discharge spout. The choice of separating media is wide, covering nylon, woven wire meshes and perforated screens. The Rota-Sift can be used for everything from scalping at very high capacity to retention of particles as small as 37 microns. Features include dust-free sanitary operation, quiet vibration-free action, quick screen change, easy cleanability, outboard bearings, large inspection door, and compact design with low power requirements.

For further information write to: Age Technologies Pvt Ltd., 712,GIDC, Makarpura, Vadodara, Gujarat 390 010.
(Industrial Products Finder 16(12), 1988, 140)

301 Almond decorticator

This thin shelled almond decorticator is ideally suited to decorticate THIN SHELLED ALMONDS of any size and can be fed continuously without pre-grading. The final product comes out in three sizes and the shell husk is aspirated and collected at the back of the unit. Developed by Tech-Know Consultants, India, the advantages are:

Insignificant damage to almond nuts
Complete separation of shell husk and almond nuts
Sturdy and rugged construction
Low cost post harvest technology.


This can cater to the requirements of rural industries in developing countries. It is successfully commercialised in India.

Following are the machine specifications

Output	: 200 kg/hr input (i.e. 140 Kg/hr. almond nuts output)
Power	: 2 HP single or 3-Phase
Manpower	: Maximum - 2 persons
Size	: 1x1x1.5m including drive unit
Unit market price	: US $ 8,000
Fees for training	: US $ 500

(Asia Pacific Tech Monitor July-August 1988, 28)

302 Machine to produce puffed grains

The machine, Model JP40-A, can produce 18-22 kg/hr of puffed grains like rice, corn and sorghum. It does not require steaming and baking. Operated by two people, the machine is powered by a 4 kw electric motor. The price, depending on production capacity, ranges from US $ 1,344 to 8,060/unit. Estimated investment needed to set up a complete production line to produce 2,000 to 4,000 units per year is US $ 2.7 million. Terms of cooperation can be either compensation trade or loan.

For more information contact: Fan Honggin, Yuling Machine Works, Jianshelu, Guxian County, Henan Province, China.
(Invention Intelligence, July 1988, 191)

303 Electronic colour sorters for sorting rice and cereals

Sortex Ltd, UK, manufactures electronic colour sorter for sorting rice and cereals. The 9400 range sorters, which are being introduced in India for the first time, are useful in sorting all types of rice, like white rice, parboiled rice, and Basmati rice, on the basis of colour. They can also handle wheat, oats, rye, and sesame seeds. The Sortex 9400 series has up to 160 eyes and sees, because of careful chute design, every grain individually even at very high capacities. A 40-channel machine can handle 3 to 4 tonnes of white long grain rice, 2.7 to 3.5 tonnes of parboiled rice or 12+tonnes of Japanese white rice every hour. The machine allows easy change over from one product to another. The 9400 is a very low power consumption machine using switch mode power supplies. The machine dimensions are: 1,995 (H) x 1,255 (W) x 1,380 mm (maximum depth). The weight is 640 kg.

For further information write to: Maharashtra Hybrid Seeds Co Ltd, Roopa Complex, Office No 6, 1st floor, 3rd Main Road, Chamarajpet, Bangalore, Karnataka 560 018.
(Industrial Products Finder 16(12), 1988, 20)

304 Multi-shaft high viscosity mixers

Age Technologies Pvt Ltd nas introduced a range of vertical multi-shaft mixers and dispersers for compounding products as thin as water or as heavy as the thickest adhesive. Heavy duty mixers, in capacities ranging from 50 to 2,000 litres, disperse and process pastes for too heavy for standard single shaft machines. These multi-shaft machines handles products having viscosities in excess of 300,000 centipoises, with increased efficiency and speed. The mixing tubs may be jacketed for heating/cooling and may be operated under vacuum. Available in the range are also mixers having scrapers to keep the sides of the tubs clea and increase heat transfer efficiency. Many variations of blades are available to emulsify, give an extra fine dispersion, mix heavy paste or cut rubber. Applications for these mixers include foods also. Different viscosities and batch sizes or special problems can be handled

For further information write to: Age Technologies Pvt Ltd., 712 GIDC, Makarpura, Vadodara, Gujarat 390 010.
(Industrial Products Finder 16(12), 1988, 145)

305 Hot and cold beverage dispensers

Jet Spray Corporation offers a complete line of visual cold beverage dispensers, post-mix beverage dispensers, fresh juice dispensers as well as hot chocolate and hot coffee dispensers.

For further information write to: Jet Spray Corporation, 825 University Ave, Norwood, MA 02062, USA.
(Industrial Products Finder 16(12), 1988, 131)

306 Agro-waste fuelled root crop dryer

The Philippine Root Crops Research and Training Centre of the Visayas State College of Agriculture in the Philippines developed a root crop dryer which utilizes agro-waste as fuel. The dryer basically consists of the furnace chamber which also serve as the primary heat exchanger, the drying chamber and the secondary heat exchanger. The product being dried does not come in contact with the smoke or products of fuel combustion. Heat needed for drying is supplied by the combustion of fuel in the burning chamber below the trays in the

drying chamber. A clearance of 25 cm between the upper surface of the heat exchanger and the bottom trays is provided to avoid damage to the product being dried. During the drying process, ambient air is heated to an average temperature of 60°C on contact with the outer surface of the drum (primary heat exchanger) and move up by natural convection. The secondary heat exchanger, consisting of rectangular ducts connected to the primary heat exchanger, is mounted above the dry chamber. It heats up the moisture-laden air from the drying chamber to prevent condensation and to facilitate its exit through the chimney One batch of 100 kg fresh root crop chips can be dried on trays within 7-8 hr requiring 50-60 kg of coconut husk or fuel.

For further information write to: Tabianan R.C., Philippine Root Crops Research and Training Centre, Visayas State College of Agriculture Baybay, Leyte, Philippines.

(Documentation Bulletin No.72, 1988, 15)

PACKAGING

307 Aseptic packaging from Amrit Soya

AMRIT Soya and Proteins Foods Ltd is planning to go in for aseptic packaging systems developed by Prepac of France. Prepac has successfully innovated a flexible aseptic packaging systems, which produce flexible aseptic pouches in different sizes from 200 ml to 1,500 ml. The company plans to launch soya milk in these pouches.

At present, aseptic packaging is used for liquid foods like UHT milk, flavoured milk, soya milk, fruit beverages, fruit pulps, coconut water, ice, tea, condensed milk etc to achieve higher shelf life without refrigeration.

(Chemical Products Finder 7(3), 1988, 119)

323 Notification on mutton exports

The export of mutton will be allowed subject to a minimum export price (MEP) of Rs. 26 per kg FOB, says a public notice by the chief controller of imports and exports.

(The Economic Times 20 November 1988, 8)

324 Molasses export

The Tamil Nadu Government will be issuing release orders to sugar mills next week for export of molasses.

Four lakh tonnes of molasses will be exported by the sugar industry, in the country and the first shipment from Tamil Nadu is scheduled to be made from Mangalore port sometime later this month.

Tamil Nadu's share in the industry's export commitment is 50,000 tonnes of molasses.

(Financial Express 10 September 1988, 1)

325 Molasses export by private parties allowed

The Government has decided to permit private parties to export molasses on registration of contract with the State Trading Corporation (STC), according to an official release

However, molasses will continue to be canalised through STC, the release said.

Export of molasses will be permitted against export slips to be issued by STC subject to the condition that ratio of molasses exported from non-coastal states origin and coastal states origin is in the ratio of two-to-one.

(Economic and Commercial News 18(44), 1988, 13)

326 CCS for alcohol export announced

The Government has extended Cash Compensatory Support (CCS) for the export of alcohol.

It has also decided to grant additional CCS of five per cent on the export of High Density Poly Ethylene (HDPE) woven sacks.

309 IPCL to give plastic crates

The department of chemicals and petrochemicals plans to introduce 20,000 plastic crates in Himachal Pradesh and 2,000 in Jammu and Kashmir during the current apple season, reports UNI.

Next year another 20,000 crates will be given. A target of one million crates has been set for the 1990 apple season according to official sources.

The Indian Petrochemical Corporation Limited (IPCL) will offer the 22,000 crates free of charge to Himachal Pradesh and Jammu and Kashmir during the current apple season.
(The Economic Times 27 September 1988, 3)

310 New controlled atmosphere pack

"Walkivent" is a package based on a new principal for CAP. Rather than introducing a mixture of gas into the pack, CO_2 is produced by pellets inserted into the pouch by specialized equipment. Drawing a vacuum and sealing the package is done in the usual manner and the pellet-filled packages are immediately placed in cartons for further transport.

Ten minutes after insertion, the CO_2 pellet begins to gasify producing a 100 per cent CO_2 atmosphere, causing the package to swell. Any excess pressure is released through a special valve which is part of the package. After about two hours, pressure equalizes and the package has the appearance of a conventional vacuum-packed pouch. External air pressure closes off the valve, retaining the CO_2 and stopping any ingress of air. Employing this new system permits the Walkivent to provide longer shelf life than that obtained from conventional MAP Systems.

For further information write to: Iris Holmstrom, United Paper Mills Ltd., Walki Pak, POB 70, SF-37601 Valkeakoski, Finland.
(Food in Canada June 1988, 11)

311 Retention of boxed juice flavour

Researcners at the University of Florida's Institute of Food and Agricultural Sciences (IFAS) can be counted upon to make life interestin for the food processing industry. Their latest ploy is a method to make boxed juices taste better. The process they developed employs a method used to coat computer microchips. It reduces flavour loss caused by the package.

"The flavour of a juice is readily absorbed by current polymeric packaging materials, lowering the quality of juice by flattening the taste," said Marty Marshall, an IFAS scientist.

Polyethylene and polypropylene are frequently used in the construction of soft-pack containers. Fruit drink industries abandoned glass for the modern materials because they are less expensive, produce a drink that is aseptically sealed and stores without refrigeration, Marshall said.

Unfortunately as with everything good there can be drawbacks. Experiments show that up to 70 per cent of fruit drink flavour is absorbed by the modern hydrocarbon-based polymers. In contrast, juice stored in glass containers remain unchanged. The ideal juice package combines the stability of glass with economic and storage benefits of soft packs, Marshall states. And this concept is now a reality, brought about by coating the insides of the plastic containers with silica.

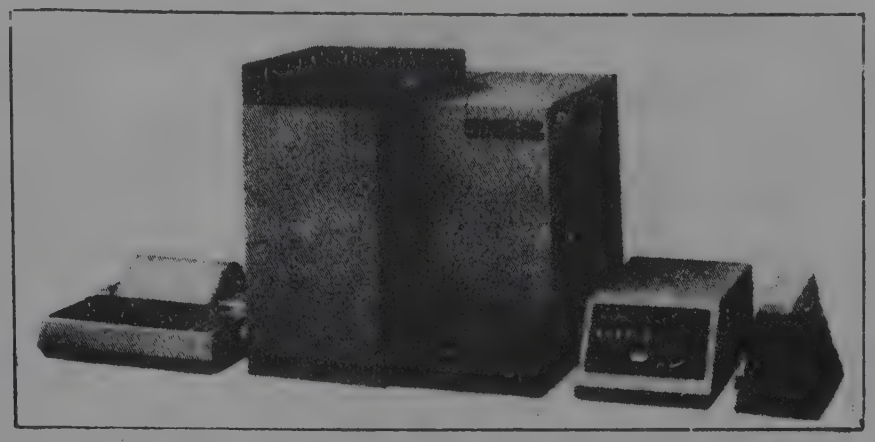
(Food in Canada June 1988, 11)

ANALYSIS

312 Nitrogen/protein analyser

Perkin-Elmer International Inc, USA, has introduced a fully automatic nitrogen/protein analyser (Model 2410) to analyse total nitrogen/protein in wide variety of samples which is accomplished in approximately 3.5 minutes. The design principle is such that the sample

is first combusted in a controlled atmosphere, after which the nitrogen is selectively separated and passed through a detector system for measurement and quantification. The system is capable of detecting component as low as 1 microgram and up to 10 mg in a given sample.



This analyser is fully microprocessor controlled having built-in auto-sampler for multi-sample analysis and service diagnostics for electronic/pneumatic failure. In addition it is capable of using He/Ar as carrier gas. The nitrogen and protein contents are directly digitally displayed obviating the need for a calculator or a computer. The instrument has wide applications in the field of food, animal feed, fertiliser, agriculture, dairy, fuel oils, paper, ocean, sediments, urea, polymer industries.

For more details write to: Labindia Instruments Pvt Ltd, 201 Nand Chambers, LBS Marg, Near Vandana Cinema.Thane, Maharashtra 400 602

(Chemical Products Finder 7(3), 1988, 91)

COMMERCIAL INTELLIGENCE

PRODUCTION (Industrial)

313 Production and demand of alcohol

(Million litres)

	Production	Demand
1984-85	594	750
1985-86	580	800
1986-87	700	560

(Financial Express 23 September 1988, 9)

314 Alcohol production and capacity

	Distillation capacity (million litres)	Production (million litres) 1985-86	Capacity Utilisation (per cent)
Andhra Pradesh	79.17	46.97	59.3
Assam	1.60	0.31	19.4
Bihar	41.21	17.53	42.5
Gujarat	76.70	27.39	35.7
Haryana	18.75	17.29	92.2
Karnataka	139.61	40.15	28.8
Kerala	7.15	5.56	77.8
Madhya Pradesh	24.32	14.24	58.6
Maharashtra	321.86	154.76	48.1
Orissa	9.77	1.94	19.9
Punjab	30.30	14.57	48.1
Rajasthan	10.30	11.61	112.7
Tamil Nadu	96.93	76.84	79.3
Uttar Pradesh	370.57	143.30	38.7
West Bengal	11.10	2.50	22.5
Other States	12.78	2.59	20.3
Union Territories	2.00	2.55	127.5
All India	1254.12	580.10	46.3

(Financial Express 23 September 1988. 9)

315 Production of solvent extracted oils

Name of the oil	1985-86	(Quantity in M.T.) 1986-87	1987-88 (upto March)
1	2	3	4
Groundnut	20,738	33,692	12,646
Cottonseed	7,712	8,557	4,569
Ricebran	2,02,504	2,79,451	1,26,146
Soyabean	1,38,528	1,00,007	54,028
Salseed	8,123	10,447	2,332
Sunflower	12,745	22,052	17,457
Safflower/Kardi	3,748	2,515	991
Coconut	3,453	4,368	1,310

Contd...

1	2	3	4
Sesame/Till	1,091	1,534	676
Nigerseed	660	426	254
Linseed	413	254	-
Castor	1,568	1,700	988
Neem	5,796	9,286	4,163
Mahua	4,448	6,097	2,096
Mango kernel	1,057	1,012	2
Rapeseed/Mustard	22,772	32,911	3,126
Others	2,276	4,601	4,035
Grand Total	4,37,632	5,18,910	2,34,819

Data pertains to the oil years (November-October)

(*The Economic Times 2 July 1988, 6*)

EXPORT

316 Machinery imports for meat processing

A working group of the Agricultural and Processed Food Products Export Development Authority (APEDA) has recommended establishment of export-oriented modern abattoirs and duty-free import of machinery to increase the export earnings from meat and its products.

The international demand for meat and its products is rising. India is in a position to meet the growing demand but is not able to do so because of insufficient modern abattoirs, the group has pointed out.

In 1987-88, the export of meat and its products spurted to Rs. 194 crores from Rs. 75 crores in 1986-87 and Rs. 76 crores in the previous year.

The group has recommended that the Union government should intervene effectively and persuade state governments, particularly Uttar Pradesh, Andhra, Maharashtra, Punjab and West Bengal, to secure the support of local authorities for starting modern abattoirs to increase production capability.

Another important suggestion given by the group relates to countering of adverse publicity and propaganda about prevalence of diseases in Indian animals in foreign markets. In this context, it has recommended declaration of disease free zones and then establishment made known widely abroad.

Moreover, it has suggested liberal imports of machinery and equipment by recognised exporters over the next two to three years on a duty-free basis and thereafter on concessional duty to enable the industry to undertake technological upgradation necessary for holding its own among the competitors abroad.
(The Economic Times 6 October 1988, 4)

317 Export market for Indian spices

Indian spices have good export market in Korea, Australia and Singapore.

This was revealed in a market survey for cardamom and other spices in the three countries conducted by the Spices Board with technical assistance from the International Trade Centre (ITC), Geneva, according to a spokesman of Spices Board of India here.

The survey revealed that consumption of spices and spice products in Korea, Australia and Singapore showed a continued growth. While the market for cardamom was small, new products from cardamom oil and oleoresins had potential in food processing industries, particularly in Australia.

As regards Indian pepper, there was good scope for extending the market share. There was scope for export of chillies to Korea, but the survey notes that the consignments should meet the market specifications.

The survey also revealed the ability of importers, especially those based in Singapore, who obtain supplies from all sources at competitive prices and after reconditioning, re-export these to other countries. It has been pointed out that the consignments exported from the country should be subject to stringent application of phytosanitary regulations to meet the health requirement of these countries the spokesman said.
(The Economic Times 5 October 1988, 3)

318 Powdered spice exemption of cess

In a bid to boost the export of value-added items, the Government has exempted from cess spices in powder form in consumer packs of weight not exceeding one kg.

The government has also exempted dehydrated green pepper, frozen green pepper and large cardamoms from the levy of cess with immediate effect, according to a notification issued by the commerce ministry.

At present, cess is levied at varied rates on exports of spices from India.

(Beverage & Food World 15(3), 1988, 48)

319 Cardamom godown in Gulf planned

The Centre is exploring the possibility of setting up a godown in one of the Gulf countries to stock cardamom.

This was disclosed by the Union Commerce Minister, Mr. Dinesh Singh, in a communication to the Kerala Chief Minister, Mr.E.K.Nayanar.

(Financial Express 25 October 1988, 1)

320 Black pepper exports rise

The export of black pepper has increased during the last three years, the Minister of State for Commerce, Mr. P.R. Das Munshi informed the Lok Sabha on Friday.

The export rose from 37,620 tonnes worth Rs. 172.48 crores in 1985-86 to 41,011 tonnes worth Rs. 240.58 crores in 1987-88, the Minister said in a written reply.

Kerala accounted for 97 per cent of the export of pepper, the Minister said.

However, the export of cardamom dropped considerably during the last three years, the Minister told Prof. P.J. Kurien. Cardamom exports of 3,270 tonnes worth Rs. 53.45 crores in 1985-86 declined to 270 tonnes worth Rs. 3.40 crores in 1987-88, the Minister said.

Clarification on EPZ, The Commerce Minister, Mr. Dinesh Singh clarified a remark made by the Minister of State, Mr. Das Munshi that export processing zones (EPZs) had "not given adequate returns for various reasons".

Mr. Das Munshi said this in reply to a question by Mr. S.B. Rao and supplementaries to it on setting up of an EPZ at Visakhapatnam even while assuring the members that location of an EPZ there had been agreed to in principle and would be taken up in due course.

Mr. Dinesh Singh intervened to say that EPZs had indeed been successful. Only, he added, the older ones had done well, but the new ones are having some problems.

(Financial Express 20 August 1988, 4)

321 IQF units to boost seafood exports

Seafood exports from the country is expected to increase considerably with the setting up of individually quick frozen (IQF) plants.

Several exporters with active assistance from the Marine Products Export Development Authority (MPEDA) have set upto 11 plants for the manufactures of IQF products, mainly shrimps. According to MPEDA, more such plants are likely to come up in the near future.

During 1987-88, more than 2,000 tonnes of IQF products worth over Rs. 21 crores were exported from India.

The MPEDA, in consultation with exporters and manufacturers of IQF, has evolved a strategy for the promotion of Indian IQF items in Erope, US and Japan.

(The Economic Times 29 September 1988, 7)

322 Export of frozen fish

Quantity in Tonnes
Value in Rs. Lakhs.

Country	Quantity 1986-87	Value
Singapore	5,567	734.93
Japan	2,699	691.06
Taiwan	2,578	320.17
Kuwait	789	197.97
Hongkong	376	59.71
Malaysia	255	48.29
U.A.E.	79	15.18
U.S.A.	152	35.85
Others	643	125.85
Total	13,138 Tonnes	2229.01 Lakhs

(Seafood Export Journal 20(7), 1988, 29)

308 Jute chests for apple and tea

Jute packaging for horticultural and plantation produce may take off in a big way soon. While the Indian Jute Industries' Research Association (Ijira) has achieved a breakthrough in developing cost-effective jute packaging, it is learnt that the Centre may extend 50 per cent subsidy for jute apple and tea chests.

With tea and apples alone expected to account for a potential market of 10 million and six million boxes valued at Rs. 50 crores and Rs. 13.2 crores per annum, respectively, the Ijira technology can provide a significant new outlet for jute mills and laminating units. One of the major advantages for mills is that jute boxes are high value added items yielding a profit of around 300 per cent.

Dr. S.R. Ranganathan, director, Ijira, explained that the product which is made from resin steamed, hot pressed conventional jute fabric, has already undergone several tests. While the country's largest tea concern has certified that the quality of the jute tea chests, the Tea Board is presently examining the product. About 25,000 jute apple chests will also be used this season in Himachal Pradesh, J and K and Uttar Pradesh for practically testing the Ijira product.

According to Dr. Ranganathan, jute packaging has unlimited potential as almost all kinds of horticultural produce can be packed in jute packs. The development assumes special importance as while the government has banned felling of trees, on the one hand, the price of imported timber is continuing to rise, on the other.

The development of jute tea and apple chest is one of the achievements of the $ 2,48 million UNDP sponsored programme for jute research, and development of diversified end uses of jute being undertaken by Ijira. The four-year programme. which started in 1987, has also been sanctioned Rs. 89.95 lakhs by the Union govern-ment.

(The Economic Times 3 September 1988, 3)

The alcohol exports will get CCS at the rate of 10 per cent of the Freight on Board value (FOB) while in the case of HDPE woven sacks, the CCS has been increased from five to 10 per cent. These rates will be applicable from September 21, according to a notification of the Commerce Ministry and will remain in force till March 31, 1989. From April 1989 new rates will be fixed by the Government for various export products keeping in view various factors.

Incidentally, the Government recently authorised the export of 500 kilolitres of alcohol which is expected to result in foreign exchange earnings to the tune of Rs. 120 million.

In the current year 20,000 tonnes of HDPE woven sacks are proposed to be exported.

(Economic and Commercial News 18(41), 1988, 6)

327 Non-basmati rice export norms

A special procedure has been formulated for export of non-basmati rice.

According to a public notice issued by the office of the Chief Controller of Imports and Exports said :

- The entire export of non-basmati rice would be placed at the disposal of the agricultural and processed food export development authority.
- Exports would be allowed on the basis of registration of contracts with the authority backed by cent per cent confirmed irrevocable letter of credit or against advance payment received in full, subject to production of bank certificate from nationalised scheduled bank in India covering hundred per cent f.o.b. value against the specific export order of against revolving letter of credit.
- As soon as the ceiling has been reached, the fact might be reported to the Ministry of Commerce by the authority.

(Economic and Commercial News 18(41), 1988, 8)

328 India's coffee export quota

India stands to gain a massive 27 per cent increase in its coffee export following the increase in the overall international quota by the International Coffee Organisation (ICO). The increase would be approximately 11,000 tonnes over last year.

Based on the final total availability figure of 56 million bags under ICD markets, India's share of the world coffee in terms of quantity would be around 8,59,939 bags of 60 kg each approximating 51,596 tonnes.

(Economic and Commercial News 18(44), 1988, 6)

329 Efforts for more fruits and vegetable exports

A working group of the Agricultural and Processed Foods Export Development Authority (APFEDA) has recommended the formulation of proper schemes in order to meet delivery schedules of fresh fruits and vegetables so as to increase their exports. Currently export earnings from fresh fruits and vegetables in 1987-88 was Rs. 930 million as compared to Rs. 1030 million in the previous financial year. This year the export target for fresh fruits and vegetables is in the region of Rs. 1250 million.

The working group has underlined the need to increase cargo space. economise the fair structure and improve the cargo handling.

While pointing out that important markets, such as the USA and Japan, rendered inaccessible plant quarantine laws, the working group has suggested the minimum installation of a few water heat treatment plants at quarantine and fumigation stations so that India could gain access to these very important markets.

According to the group, at present the data base is very weak and it should, therefore, be strengthened on a priority basis, particularly in respect of area and production, as well as of international demand and prices through international market surveys.

(Economic and Commercial News 18(43), 1988, 6)

330 Mangoes export

The Pakistan is successfully exploiting the export of potential of fresh mangoes while India's export earnings from the fruit are still negligible.

Pakistan's fresh mango exports have increased from about 1,000 tonnes in 1977-78 to more than 12,000 tonnes, stepping up export earnings from the fruit in a big way.

The main export markets for both India and Pakistan are the same - the UAE, Saudi Arabia, Kuwait, Bahrain and the UK.

Area under mango cultivation has also increased in Pakistan from 69,000 hectares in 1982-83 to 79,000 hectares in 1986-87, registering an increase of about three per cent per annum.

Production of mangoes has also increased from less than a million tonnes in 1982-83 to about eighty million tonnes in 1986-87, showing an increase of about 2.5 per cent per year.

The Philippines and Mexico are at present the main suppliers to Japan. Alphonso mangoes are said to hold good scope for stepping up exports to Japan because of their distinctive taste, flavour and shape. Besides mangoes will have no domestic competition and several hotels and restaurants had already started serving tropical dishes.

However, Indian mangoes are at present banned for import in Japan as they do not satisfy the "plant quarantine law" of that country due to the presence of fruit flies.

The ban can be waived if India establishes a proper facility to disinfect the pests and the effectiveness of the method is certified by the Japanese authorities.

As per the Japanese regulations, the machine for vapour treatment has to be installed in the country of origin depending upon its climatic conditions and under the supervision of Japanese experts.

Philippines and Mexico, the main suppliers to Japan, have already set up such vapour treatment plants.

About Rs. 216 crores in foreign exchange was earned by India through export of fruit and fruit products since 1985-86.

The Government is exploring new markets and incentives like cash compensatory scheme and import replenishment are being allowed.

India's exports of fruits and fruit products stood at 80,628 tonnes valued at Rs. 74.19 crores in 1985-86, 64,134 tonnes valued at Rs. 64.34 crores in 1986-87 and at 73,300 tonnes valued at Rs. 77.80 crores in 1987-88

The export of mangoes during April 1987-January 1988 was 14,900 tonnes as compared to 10,500 tonnes during 1986-87, showing thus an increase of around 4,400 tonnes within a period of ten months. Exports had, however, gone down in 1986-87 as compared to 16,460 tonnes exported in 1985-86.

(Financial Express 6 October 1988, 2)

331 Award for apple juice concentrate

The Himachal Pradesh Marketing and Processing Corporation has been awarded the prestigious 'International American award, 1988' for their best quality apple juice concentrate.

The corporation had exported 150 tonnes of apple juice concentrate to the United States last year, Mr. R.S. Rana, the corporation's managing director told newsmen.

(The Economic Times 23 October 1988, 8)

332 Sesame seeds export allowed under OGL

The Central Government has permitted the export of sesame seeds under open general licence number three, reports PTI.

The permission is however, subject to registration of export contracts with the Indian oil and produce exporters association (IOPEA), Bombay.

An IOPEA press release issued here today said the Chief Controller of imports and exports, New Delhi, has issued a public notice in this connection on November 1.

(The Economic Times 6 November 1988, 1)

333 Fenugreek exports

India is one of the major producers and exporters of Fenugreek. Some 30,000 to 40,000 hectares are planted with Fenugreek, yielding abou 20,000 metric tonnes. About 3,000 metric tonnes are exported, earning about Rs. 1.7 crores. Saudi Arabia, Japan, Sri Lanka, Korea, and the UK are some of the foreign buyers. Rajasthan and Gujarat are the leading growers of Fenugreek in India.

Fenugreek seeds have fixed oil content of about seven per cent and are a good source of protein.

(The Economic Times 10 November 1988, 4)

IMPORTS

334 Import of technology for capital equipment

The centre has drawn up a package of measures that will permit the food processing sector to import state-of-the-art technology for capital equipment and process technology, Mr.Tytler said.

The State Governments had been asked to form nodal agencies to ensure development of the food processing sector.

A project for setting up a pineapple juice concentrate plant at Silchar was under execution by the Modern Food Industries India Ltd., It had also acquired land at Udaipur for setting up an energy food plant, the Minister said.

(Financial Express 18 November 1988, 4)

335 Cloves, Cinnamon off OGL

The Government on Wednesday effected a major change in the import policy by shifting cloves and cinnamon/cassia from open general licence category to permit licence.

According to official sources, this would greatly benefit the clove, cinnamon and cassia growers in Kerala.

An official release said that "cloves and cinnamon/cassia which were so far allowed for import by all persons under OGL for stock and sale purposes, will now be permitted for import only against

licences to be granted to all those who have imported these items during the current year on in any of the last five years. Actual users who have no past imports will also be eligible for licence".
(Deccan Herald 1 December 1988, 14)

336 Steep cuts for fast foods machinery

Four important packaging machinery for the fast foods and consumer products sector are now on the concessional duty list. A total duty of only 35 per cent is applicable on them under notification number 250 of 20, September. The machinery listed are: (1) Sretch blow moulding machine, (2) Multilayer coater/extruder machine, (3) Plastic and laminate collapsible tube making machine and (4) Aluminium collapsible tube making machine.

The machinery is mainly for making packaging material for perishable agricultural products. The concession is meant for new units such as the controversial Pepsi Cola project.

On analysing the implications on the basis of information in the Database, we find that 35 per cent rate of duty is the lowest rate applicable on machinery.

In the last two years, the government has tried to modernise the food packaging industry by extending the rate to select machinery in this sector. The strange part is that three of the four machines in the current notification in the 88-89 Budget. What is more, there is no end use condition now. Even packaging material for non essential items like toothpaste and pan masala, apart from Pepsi Cola products, can be manufactured. We also find that packaging machinery without any conditions on end use attract duties varying from 65 to 90 per cent.
(The Economic Times 21 October 1988, 10)

337 Almonds import liberalised

The Union government has liberalised the import policy for almonds. Apart from dry fruit licensees who will benefit from the Amendment in the policy, additional licences issued to export houses and trading houses after April 1, 1988, will also be valid for import of almonds up to five per cent of the licence value and within the overall value of the licence.

According to a public notice issued by the chief controller of imports and exports on July 27, each eligible dry fruit licensee will also be granted an additional licence for the import of almonds only for a value of Rs. 20,000 irrespective of the value of the dry fruit licence to which he is entitled. This is for stock and sale as provided for in chapter XIII of the import-export book (volume 1). The licence applied for will include both dry fruit and almonds. The Amendments have been made in the public interest, the public notice stated.
(The Economic Times 29 July 1988, 1)

338 Palm oil import from Indonesia

India and Indonesia have agreed to set a target for the export of 30,000 tonnes of palm oil annually to India by 1990.

The agreement was arrived at a recent India-Indonesia Joint Business Council (JBC) meeting between the Federation of Indian Chambers of Commerce and Industry (FICCI) and the Indonesian Chamber of Commerce and Industry (Kadin) held here on November 17 and 18.

Neutralised palm oil, used in India for the manufacture of vanaspati ghee, can be produced in Indonesia with the help of Indian knowhow. The excess capacity in the oil processing units in Indonesia would enable the production of neutralised oil to suit Indian requirements at a competitive price.
(Financial Express 22 November 1988, 12)

TRADE INFORMATION

339 Rice bran at control price

The Punjab Government has decided to give rice bran at controlled price. According to a spokesman of the food and civil supplies department, the Punjab Rice Bran Price Control Order is being re-promulgated.
(Poultry Guide 25(9), 1988,101)

340 Technology data bank

The Government is planning to set up a 'technological data bank' in consultation with the Directorate General of Technical Development (DGTD) for dissemination of requisite information to both private and public sector industries, according to the Union Minister of State for Industrial Development Mr. M. Arunachalam.

Wide ranging discussions to setting up the data bank have already been held with some of the European companies. The data bank would go a long way in absorbing various aspects of technological collaborations, he said.

(Financial Express 2 September 1988, 2)

341 Salt industry under priority sector

The Government has decided to include the salt industry under "priority sector" for financial assistance.

According to official sources, this is in response to the demand from the industry and is expected to give a further fillip to the industry which employs thousands of people in coastal areas and in Rajasthan and Madhya Pradesh.

The sources said the long pending demand of the salt industry for being included under the priority sector had been considered by the Government.

It was decided in consultation with the Reserve Bank of India to include the industry in the priority sector and availing concessional credit from the public sector banks as manufacture of salt is an industrial activity under the small scale sector.

The sources said the ambitious programme launched for iodisation of salt was so successful that now even large-scale units want to enter into salt production. However, the industry Ministry is confining it only to the small-scale sector as a matter of policy.

Salt is one of the commodities in which the country has achieved self sufficiency and the production of common salt increased from 1.7 million tonnes in 1987.

(Financial Express 19 September 1988, 1)

342 Licensing system for hatcheries

Poultry farmers in Karnataka can now heave a sigh of relief, with the State Government there bringing in hatching of eggs and day-old-chick production besides their supply and sale under licensing system.

This licensing system, which is notified in the recent Gazette of the Karnataka Government, which came into effect immediately, gives the licensing authority enormous powers including the right to seize breeding stock, hatching eggs and day-old chicks or books of accounts of hatcheries not conforming to the stipulations laid down by the Government.

The Gazette notification has made it clear that any person carrying on the business of production and sale of hatching eggs or day-old chicks shall obtain a licence within three months from the publication of the Karnataka hatching eggs and day-old chick (regulation of production, supply and sale) Order, 1988. The date of Gazette notification is August 4, 1988.

As per the licensing system, hatcheries are also required to properly label the chick boxes giving details of date on which it was hatched, vaccinations injected and brand name of chicks. Besides, they will have to submit a monthly return of breeding stocks maintained, hatching eggs while chicks produced and sold. That apart, the licence which is renewable every year has to be displayed in the business premise

The order will have far reaching implications for the chick producers and buyers in Karnataka as it stipulates that broiler chicks sold should at least weigh 38 gm and white egg layer type chicks 32 gm. Besides, the chicks should be healthy, active and vigorous, free from diseases, deformities, nutritional disorders and deficiencies.
(Financial Express 10 September 1988, 3)

343 Coconut purchase centre at Madras

The Coconut Development Board in the Union ministry of agriculture will soon open a copra purchase centre in Madras for the benefit of the coconut growers of Tamil Nadu, reports PTI.

Stating this at a press, conference here on Wednesday, Mr. Bali Range Gowda, chairman of the Board, said two purchase centres were already functioning in Cochin and Bangalore.

The current production of copra in the country was 6,000 million nuts per annum and various programmes were being implemented to increase the production to meet the requirement by the end of the current Seventh Plan period which was estimated to be 10,000 million units, the chairman added.
(The Economic Times 27 May 1988, 3)

344 Chewing gum sales in Japan

A peak in the demand for conventional chewing gum has moved at least two Japanese companies to introduce novel gums in an effort to stimulate sales.

No time gum contains a substance that helps prevent tooth decay according to its manufacturer, Lotte Company. The gum swells to more than twice the size of conventional gums, enabling it to come in contact with more teeth. Lotte indicates that the larger size of the gum helps it to remove plaque that forms between teeth and on their surface.

Runaway success

After an extremely successful nationwide launch in August, Lotte has revised its projected sales of Notime from 24 million pieces a year to 48 million. And the Japan Economic Journal reports that revenues from the new product are expected to reach Y5 billion in annual sales.

Kanebo Ltd. has launched two gums, one in targeted at smokers, Gum After Smoking and one at those who drink alcoholic beverages, Gum After Drinking.

The smoker's gum is reported to contain essence of TK-Orion and propolis. Kanebo claims that TK-Orion will lower the density of nicotine in the blood. Propolis is said to be good for throat inflammation and digestive ailments. The drinker's gum contains the essences of ginseng, licorice and persimmon leaves.
(Food Engineering International March 1988, 13)

345 The fresh food bible of Britain

A country of the size of India, has not produced any natural guide for fresh food, thereby showing utter lack of diet and nutrition in our country. In contrast, Britain, a small country, has a national fresh food Bible called 'Prodfact 1988'. It is the most comprehensive guide to British agricultural and horticultural products and covers more than 80 different types of fresh produce.

Since the first edition in 1982 it has grown to 432 pages of information on nutritional values, cooking methods, storage, cultivation, statistics, historical detail and the best ways to buy fresh foods produced in Britain ranging from apples to yogurt. This latest edition contains three new sections on farmed venison, cider and wheat.

The list of further information sources has been subtantially increased with address and telephone numbers, plus named contacts, for many of the organization concerned with British Agriculture and Horticulture. Updated annually by the British Food Information Service of Food from Britain, Prodfact is invaluable to food writers, schools, universities and commercial organizations - in fact to any one interested in and involved with British fresh food.

Some of the questions pertaining to modern kitchen, nutrition and food processing answered in the text are:

.. Can you cook an egg in a microwave ? -- As the basic methods of cooking eggs can be used in a microwave but poached or fried eggs should have the yolks pricked first, to prevent explosion. Eggs should not be cooked in the shell unless a special microwave recipe is followed.

.. What is the calories count for Cheddar Cheese ? -- The calorie content of a Cheddar type cheese is 410 per 100 gms.

.. How do you tell a fresh Brussels sprout from a stale one ? -- A fresh Brussells sprout should have a clean white base and no sign of yellowing leaf.

.. Is it possible to freeze apples ? -- Apples peeled, cored and sliced can be frozen after steeping in the juice of a lemon added to 70 ml (1.25 pints) of water for 15 min.

Prodfact-1988 is available from Food From Britain, Market Towers, New Convent Garden Market, London SW8 5N Price £ 9.50 plus £ 1.25 postage.
(Chemical Weekly 34(9), 1988, 81)

FOOD REGULATION, QUALITY CONTROL AND HYGIENE

346 Control limit for ethylene dibromide

The U.K. control limit for exposure to ethylene dibromide will be 0.5 ppm (8-hr time-weighted average), down from the present 1 ppm limit from 1 January 1989.
(Chemistry and Industry 18 July 1988, 439)

347 Limit for radionuclides in food

Radionuclides may appear in food due to releases from highly unprobable accidents in nuclear reactors. The traces of radioactive substances may make a small contribution to the radiation dose to members of the public. This is in addition to the dose contributed by natural radioactivity present in all food items.

Following Chernobyl accident, different countries have prescribed acceptable levels of radionuclides in food items.

In India, the Atomic Energy Regulatory Board (AERB) is responsible to carry out regulatory and safety functions pertaining to radiological safety in the country. A special meeting of experts from various ministries and organisations was organised by AERB on 27 August 1987 at Trombay to discuss the scientific basis for the permissible levels of radionuclides in food stuffs.

In stipulating the values of permissible levels of radionuclides in food items relevant recommendations of the International Commission on Radiological Protection (ICRP) on radiation doses to members of the public are considered. It is ensured that consumption of food items containing PLRF will expose the population to only a small fraction of the dose to members of the public recommended by ICRP. Also. this contribution is very small compared to the variation in radiation dose to public inhabiting different parts of the country.

It was explained that the philosophy adopted has adequate margin of safety. Because of this, variation in the habit of food consumption of population in different states and regions need not be considered in the computation.

After detailed discussion, the permissible levels of radionuclides in food items, as indicated in the Table, were accepted for implementation.

Table: Permissible Levels of Radionuclides in Food

Food Items	Permissible Levels of Radionuclides in Food for normal situations	
	Cs-137	Sr-90
1. Milk (Bq/L)	30	10
a) Milk Powder (Bq/kg)	330	110
b) Butter (Bq/kg)	40	15
c) Butter Oil (Bq/kg)	40	15
2. All other food items (Bq/kg) (Meat, Cereals and vegetables)	40	15

Note: In the year of an accident (to be notified by Competent Authority) these levels can be 10 times more and in addition 1-131 conc. of 2000 Bq/L or Bq/kg will apply.

(World Science News No.36, 1988, 11)

348 Prevention of Food Adulteration Rules (Second Amendment) 1988

1. (1) These Rules may be called the Prevention of Food Adulteration (Second Amendment) Rules, 1988.

(2) They shall come into force immediately on the expiry of six months from the date of their publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955, (i) in rule 49, after sub-rule (16), the following sub-rules shall be inserted, namely:-

"(17) No person shall sell mineral oil (food grade) for use in confectionery except under Indian Standards Institution Certification Mark.

(18) No person shall sell confectionery weighing more than 500 gms, except in packed condition and confectionery sold in pieces shall be kept in glass or other suitable containers.

Explanation - For the purposes of sub-rules (17), and (18)" "Confectionery" shall mean sugar boiled confectionery, lozenges and chewing gum and pubble gum".

(ii) In Appendix 'B', item 25, -

(a) for item A, 25.01, the following item shall be substituted namely:-

"A25.01--Sugar boiled confectionery whether sold as hard as boiled sugar confectionery or pan goods confectionery or toffee or milk toffee or modified toffee or lecto-bon-bon or by any other name shall mean a processed composite food article made from sugar with or without doctoring agents such as cream of tartar, by process of boiling whether panned or not. It may contain centre filling, or otherwise, which may be in the form of liquid, semi-solid or solids with or without coating of sugar or chocolate or both. It may also contain any of the following:-

(i) sweetening agents such as sugar invert sugar, jaggery, lactose, gur, bura sugar, Khandsari, sorbitol, honey, liquid glucose;

(ii) milk and milk products;

(iii) edible molasses;

(iv) malt extracts;

(v) edible starches;

(vi) edible oils and facts;

(vii) edible common salt;
(viii) fruit and fruit products and nut and nut products;
(ix) tea extract, coffee extract, chocolate, cocoa;
(x) Vitamins and minerals;
(xi) Shellac (food grade) not exceeding 0.4 per cent by weight, bee wax (food grade), paraffin wax (food grade), carnauba wax (food grade), and other food grade wax or any combination thereof;
(xii) edible desicated coconut;
(xiii) spices and condiments and their extracts;
(xiv) candied peels;
(xv) enzymes;
(xvi) sodium bicorbonate;
(xvii) lubricants such as calcium, magnesium or sodium salts of stearic acid, talc (not exceeding 0.2 per cent), ioing sugar, or mineral oil (not exceeding 0.2 per cent by weight), stearic acid (food grade), glycerine (food grade);
(xviii) permitted anti-oxidants;
(xix) permitted colouring matter
(xx) permitted stabilizing and emulsifying agents;
(xxi) flavouring agents;
(xxii) acidulants, such as citric acid, tartaric acid,malic acid (food grade);
(xxiii) jellifying agent, such as gelating (food grade), agar-agar, soldium carboxymethyl cellulose;
(xxiv) permitted preservatives;
(xxv) edible foodgrains, edible seeds;
(xxvi) calcium bicarbonate, calcium carbonate;
(xxvii) baking powder;
(xxviii) gulkand, gulabanafsha, mulathi;
(xxix) puffed rice;
(xxx) china grass;
(xxxi) eucalyptus oil, camphor, menthol oil crystals, pepper mint oil;

(xxxii) thymol;

(xxxiii) edible oil seed flour and protein isolates;

(xxxiv) gum arabic and other edible gum.

It shall not contain artificial sweeteners.

Mineral oil (food grade) if used as a lubricant, shall not exceed 0.2 per cent by weight.

It shall also conform to the following standards, namely:-

(i) Ash sulphated (on salt free basis) - Not more than 2.5 per cent by weight.

Provided that in case of sugar boiled confectionery where spices are used as centre filling, the ash sulphated shall not be more than 3 per cent by weight.

(ii) Ash insoluble (in dilute Hydrochloric acid)-- Not more than 0.2 per cent by weight.

Provided that in case of sugar boiled confectionery where spices are used as centre filling, the ash insoluble in dilute Hydrochloric acid shall not be more than 0.4 per cent.

Where the sugar boiled confectionery is sold under the name of milk toffee, and butter toffee, it shall form to the following additional requirements as shown against each ;

(1) Milk toffee--

(i) Total protein (NX6.25) shall not be less than 3 per cent by weight on dry basis;

(ii) Fat content shall not be less than 4 per cent by weight on dry basis.

(2) Butter toffee - fat content shall not be less than 4 per cent by weight on dry basis.

It may contain sulphur dioxide in concentration not exceeding 350 parts per million;

(b) item A.25.02 shall be omitted.

(c) for item A.25.03, the following item shall be substituted namely:-

"A. 25.02 lozenges: Lozenges shall mean confections made mainly out of pulverised sugar, or icing sugar with binding materials such as edible gums, edible gelatine, liquid glucose or dextrin and generally made from cold mixing which does not require primary boiling or cooking of the ingredients. It may contain any of the following:-

(i) sweetening agents such as dextrose, dextrose-mononydrate, honey, invert sugar, sugar, jaggery, bura sugar, khandsari, sorbitol, liquid glucose;

(ii) milk and milk products;

(iii) nuts and nuts products;

(iv) malt syrup;

(v) edible starches;

(vi) edible common salt;

(vii) ginger powder or extracts;

(viii) cinnamon powder or extracts;

(ix) aniseed powder or extracts;

(x) caraway powder or extracts;

(xi) cardamom powder or extracts;

(xii) cocoa powder or extracts;

(xiii) protein isolates;

(xiv) coffee extracts or its flavour;

(xv) permitted flavouring agents;

(xvi) acidulants such as tartaric acid, malic acid and citric acid (food grade);

(xvii) permitted colouring matter;

(xviii) vitamins and minerals;

(xix) sodium bicarbonate

(xx) lubricants such as calcium, magnesium or sodium salts of stearic acid talc (not exceeding 0.2 per cent) icing sugar, mineral oil (food grade), stearic acid (food grade), glycerine (food grade),

It shall not contain artificial sweeteners.

Mineral oil (food grade), if used as lubricant, shall not exceed 0.2 per cent by weight.

It shall also conform to the following standards:

(i) Sucrose content - Not less than 85.0 per cent by weight,

(ii) Ash sulphated (Salt free basis) - Not more than 3.0 per cent by weight.

(iii) Ash insoluble in dilute Hydrochloric acid - Not more than 0.2 per cent by weight.

It may contain sulphur dioxide in concentration not exceeding 350 parts per million."

(The Gazette of India Part II - Section 3 - Subsection (i) No.184, 8 April 1988)

349 Prevention of Food Adulteration Rules (Third Amendment) 1988

1. (1) These rules may be called the Prevention of Food Adulteration (Third Amendment) Rules, 1988.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955, in Appendix 'B':-

(i) in entry (e) of item A, 17.01, for the words and figures "Free fatty acids as oleic acid. Not more than 3.0 per cent", the words and figures "Acid value . Not more than 6.0" shall be substituted;

(ii) in entry (e) of item A.17.02, for the words and figures "Free fatty acids as oleic acid.. Not more. than 0.25 per cent", the words and figures "Acid value. Not more than 0.50" shall be substituted;

(iii) in entry (e) of item A. 17.03, for the words and figures "Free fatty acids as oleic acid. Not more than 3.0 per cent", the words and figures "Acid value. Not more than 6.0" shall be substituted;

(iv) in entry (e) of item A.17.04, for the words and figures "Free fatty acids as oleic acid. Not more than 2.0 per cent", the words and figures "Acid value.. Not more than 4.0" shall be substituted.

(v) in entry (e) of item A.17.05 for the words and figures "Free fatty acids as oleic acid. Not more than 0.25 per cent", the words and figures "Acid value. Not more than 0.50" shall be substituted;

(vi) in entry (e) of item A.17.06, for the words and figures "Free fatty acids as oleic acid.. Not more than 3.0 per cent". the words and figures "Acid value. Not more than 6.0 shall be substituted;

(vii) in entry (e) of item A.17.07, for the words and figures "Free fatty acids as oleic acid. Not more than 3.0 per cent", the words and figures "Acid value. Not more than 6.0" shall be substituted;

(viii) in entry (e) of item A.17.08, for the words and figures "Free fatty acids as oleic acid.. Not more than 3.0 per cent", the words and figures "Acid value. Not more than 6.0" shall be substituted;

(ix) in entry (e) of item A.17.09, for the words and figures "Free fatty acids as oleic acid. Not more than 3.0 per cent", the words and figures "Acid value. Not more than 6.0" shall be substituted;

(x) in entry (e) of item A.17.10, for the words and figures "Free fatty acids as oleic acid. Not more than 3.00 per cent", the words and figures "Acid value. Not more than 6.0" shall be substituted;

(xi) in entry (e) of item A.17.11, for the words and figures "Free fatty acids as oleic acid. Not more than 3.0 per cent", the words and figures "Acid value. Not more than 6.00" wherever occurring, shall be substituted;

(xii) in entry (e) of item A.17.12, for the words and figures "Free fatty acids as oleic acid.. Not more than 3.0 per cent", the words and figures "Acid value.. Not more than 6.0" shall be substituted;

(xiii) in item A.17.13, for the words and figures "Free fatty acids as oleic acid. Not more than 1.25 per cent", the words and figures "Acid value.. Not more than 2.50" shall be substituted;

(xiv) in entry (e) of item A.17.14, for the words and figures "Free fatty acid as oleic acid. Not more than 0.25 per cent", the words and figures "Acid value. Not more than 0.50" shall be substituted

(xv) for item A.17.15, for the existing entry the following entry shall be substituted, namely:-

"A.17.15. "Refined vegetable oil" means any vegetable oil which is obtained by expression or solvent extraction of vegetable oil bearing materials, deacidified with alkali and/or physical refining and/or by miscella refining using permitted foodgrade solvents followed by bleaching with absorbent earth and/or carbon and deodourised with steam. No other chemical agent shall be used. The name of the vegetable oil from which the refined oil has been manufactured shall be clearly specified on the lable of container. In addition to the under-mentioned standards to which refined vegetable oils shall conform to the standards prescribed in these rules for the specified edible oils shall also apply except for acid value which shall be not more than 0.5. Moisture shall not exceed 0.10 per cent by weight;";

(xvi) in item A.17.16, for the words and figures "Free fatty acids as oleic acid.. Not more than 3.0 per cent", the words and figures "Acid value.. Not more than 6.0" shall be substituted;

(xvii) in entry (e) of item A.17.17, for the words and figures "Free fatty acids as oleic acid.. Not more than 3.0 per cent", the words and figures "Acid Value. Not more than 6.0", shall be substituted;

(xviii) in item A.17.18, (i) for the brackets, letter, words and figures "(g) free fatty acids (expressed as oleic acid). Not more than 3.0 per cent OR" shall be omitted.

(ii) in last para, for brackets, letter, words and figures, "free fat fatty acids content which shall not be more than 0.3 per cent (A value being not more than 0.6)", the words and figures, "acid va which shall be not more than 0.6", shall be substituted;

(xix) in item A.17.19 the brackets, letter, words and figures "(f) Free fatty acids (expressed as oleic acid). Not more than 5.0 per cent OR" shall be omitted;

(xxi) in item A.17.21, the brackets, letter, words and figures "(e) Free fatty acids (expressed as oleic acid) .. Not more than 3.0 per cent OR" shall be omitted;

(xxii) in item A.17.22, the brackets, letter, words and figures "(e) Free fatty acids (expressed as oleic acid). Not more than 3.0 per cent OR" shall be omitted;

(xxiii) in item A.17.23, the brackets, words and figures, "(v) Free fatty acids (as oleic acid) . Not more than 0.25 per cent by weight OR" shall be omitted;

(xxiv) in entry (a) of item A.17.21, for the words and figures "Free fatty acids as oleic acid. Not more than 1.0 per cent by weight", the words and figures "Acid value . Not more than 2.0", shall be substituted.

(The Gazette of India Part II-Section 3 - sub-section (i) No.183, 8 April 1988)

350 Prevention of Food Adulteration Rules (Fourth Amendment) 1988

1. (1) These rules may be called the Prevention of Food Adulteration (Fourth Amendment) Rules, 1988.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Prevention of Food Adulteration Rules, 1955 (hereinafter referred to as the said rules), after clause (f) of the rule 32, the following shall be inserted, namely:-

"(g) where aspertame (methyl ester) is marketed as table top sweetener, it shall not contain more than 18 mg of aspertame (methyl ester) in a tablet and shall be in moisture proof package. The date of expiry shall be mentioned and the expiry period shall not be more than three years from the date of packing.

3. After sub-rule (ZZZ) of rule 42 of the said rules, the following shall be added, namely:-

"(ZZZ) (1) :- Every package of food which is permitted to contain artificial sweetener mentioned in table given in rule 47 shall carry the following label, namely :-

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This.....(name of food) contain
.....(name of artificial sweetener)

(ZZZ) (2) - Every package of aspertame (methyl ester) marketed as table top sweetener shall carry the following label namely:-

---

WARNING

(i) FOR DIABETICS ONLY
(ii) TO BE USED ON MEDICAL ADVICE
(iii) NOT TO BE USED BY PREGNANT WOMEN CHILDREN OR OTHERS HAVING SYMPTOMS OF PHENYLKETONURIA

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4. Sub-rule (g) of rule 44 shall be omitted.

5. For rule 47 of the said rules, the following rule shall be substituted, namely:-

"47. Restriction on use and sale of artificial Sweeteners:

(1) No artificial sweetener shall be added to any article of food:

Provided that artificial sweeteners may be used in following food article in quantities not exceeding the limits shown against them and shall bear the lable declaration as provided in (1) of sub-rule (ZZZ) of rule 42.

Sl.No.	Name of artificial sweetener	Article of food	Maximum limit
1	2	3	4
1.	Saccharine sodium	Carbonated water	100 P.P.M.

Provided that saccharine sodium or aspertame (methyl ester) may be said as table top sweeteners and may contain carrier/or filler articles.

Provided further that saccharine sodium and aspertame (methyl ester) should conform to the standards laid down under item A.07.10 and A.07.12 of Appendix 'B' of these rules, respectively:-

(2) No mixture of artificial sweeteners shall be added to any article of food or in the manufacture of table top sweeteners.

(3) No person shall sell aspertame as table top sweeteners, except for diabetic use and only under medical advice under label declaration as provided in (2) of sub-rule (ZZZ) of rule 42:

6. In rule 57 of the said rules, in the Table after item 5 and the entries relating thereto, the following items and entries shall be added, namely:-

1	2	3
6. Cadmium	All foods	1.5
7. Mercury	Fish	0.5
	Other food	1.0
8. Methyl Mercury (Calculated as the element)	All foods	0.25"

7. In rules 60 and 61 of the said rules, the words "and Brominated Vegetable Oils" shall be omitted.

8. After rule 62 A of the said rule, the following rule shall be inserted, namely:-

"62 B. Use of release agents in confectionery :

Spreadasil silicon spray (Dimethyl Polysiloxane) if used, as release agent in confectionery, shall not exceed 10 ppm of the finished product".

9. For rule 63A of the said rules, the following rule shall be substituted, namely:-

6 "63 A. Restriction on use of flavouring agents:

The use of the following flavouring agents are prohibited in any article of food, namely:-

1. Coumarin and dihydrocoumarin;
2. Tonkabean (Dipteryladorat); and
3. B-asarone and cinamyl anthracilate"

10. After rule 64 BB of the said rules, the following shall be inserted, namely:-

"64BBB. Use of menthol :

Menthol, may be used in following food articles in quantities not exceeding the limits shown against each :-

Sl.No.	Food	Maximum limit (Percentage by weight)
1.	Pan Masala	0.03
2.	Chewing Tobacco	0.3
3.	Confectionery	0.1

11. In Appendix 'B' of the said rules, after item A.07.11, the following item shall be inserted, namely:-

"A.07.12-Aspartyl phenyl alanina methyl ester commonly known as Aspertame, having empirical formula as C_{14} H_{18} N_2 O_5 and molecular weight as 294.31, shall be the material which is slightly soluble in water and Methanol. It shall contain not less than 98 per cent and not more than 102 per cent of Aspertame on dried basis. It shall not contain more than 3 ppm of Arsenic and 10 ppm of Lead.

The loss on drying of the material at 105°C for 4 hours shall not be more than 4.3 per cent of its weight. The sulphate ash shall not be more than 0.2 per cent. It shall not contain more than 1 per cent of diketo-piper-zinc".

(The Gazette of India Part II - Section 3-Sub.section (i) No.196 15 April 1988)

351 Quality control for food processing industries

The Development Council for Food Processing Industries whose term period expired on July 16,1988 constituted a Panel on Research and Development and Human Resource under the Chairmanship of Dr. M.V. Rao, Special Secretary, Agriculture Research and Education. According to Minister of State for Food Processing Industries, Jagdish Tytler the panel had identified priority areas for research and development activities. Emphasis had been placed on quality control and design and development of machinery and equipment for food processing industries.

The panel had also recommended that a coordinating mechanism to make use of the existing institutions and facilities in the field of food processing to be set up so as to strengthen them whenever required and tune their output to meet the well identified national needs on the basis of a mission oriented approach. The recommendation made by the panel and its implications would have to be studied by the Government indepth before any further action is contemplated, the minister said.

(Commerce, 157(4032), 1988, 32)

352 Quality maintenance of export goods

A Cell in the ministry of commerce will be set up soon to deal "effectively" with foreign buyers complaints about sub-standard quality of goods supplied by Indian exporters and non adherence to delivery schedules. It will also look after complaints about non-payment of normal commission.

Commerce and finance minister Narayan Datt Tiwari has taken a serious view of the frequent complaints received from buyers abroad against Indian suppliers which include the State Trading Corporation (STC), Trade Development Authority (TDA) and other export organisations and companies.

The cell would monitor the complaints which are to be looked into promptly. In this way, it should be possible to generate confidence among importers, which is crucial promoting exports.

The minister, in fact, had a meeting with export inspection agencies last week to discuss the quality issue. He made it clear that sub-standard goods should not leave the Indian shores. He asked representatives of these agencies, which include the export inspection council not to harass the exporters and clear the goods without "redtapism". (*The Economic Times 27 May 1988, 1*)

353 Calcium availability in heated milk

Researchers at Dundee University have found that sterilization of milk by heating at high temperature reduces calcium available for human body. The high temperature exposure makes the calcium in the milk less soluble and so reduces the amount the body can absorb.

In fresh milk calcium comes in small soluble packages called micelles. Inside the micelle the calcium is electrostatically bound to a protein called casein. The association of calcium and casein keeps the calcium soluble by preventing it from forming insoluble salts. The researchers treated the micelles to high temperatures to investigate how much calcium remained in the soluble form. They isolated casein micelles from pasteurized milk from cows and from reconstituted milk granules. The researchers then passed a buffer solution containing casein and radioactively labelled calcium through length of rat's intestine. To make the experiment as realistic as possible they acidified and neutralised the micelle solution simulating digestion. Artificial blood flowed outside the rat intestine.

The amount of calcium absorbed into the blood from sterilised and freeze-dried milk was 20% less than the amount absorbed from pasteurized milk. Researchers, therefore conclude that heating milk to a high temperature alters the molecular properties of casein and reduces its ability to keep calcium soluble.

This research finding should be of particular interest to milk producers and also suggest that growing children and pregnant women should not rely on high temperature sterilised milk as their source of calcium. *(Chemical Weekly 34(1), 1988, 81)*

A new bacteria causing food poisoning

Listeria has come into limelight in USA and Western Europe and has led to 'Listeria hysteria' among food producers. The organism identified is Listeria monocytogenes. Most outbreaks of food poisoning by this organism identified have mostly been associated with L. monocytogenes type 4b.

L.monocytogenes is widely distributed in nature and has been found in soil, sewage, rivers, vegetable and animal tissues and food manufacturing and kitchen premises. Its entry into the food chain via raw milk, meat and vegetables is inevitable. It can grow from about zero to 45°C. Growth is slow upto 4°C but between 5 and 10°C - the temperature of most refrigerators - the bacteria can multiply to 1 million cells per ml. in a few days in some foods. It can also tolerate high concentrations of salt. Preserved meats may be also in a similar category Prepacked salads are currently undergoing intensive tests as they have been also shown to be a source of Listeria.

In people, the effects of L.monocytogenes range from a mild flu-like malaise to meningitis and abortion, and include septicaemia, pneumonia, skin lesions and mental retardation in children. Most deaths are attributed to meningitis and fatalities are attributed to suppressed immune system.

Confusion over Listeria is still widespread. The WHO and the Department of Health of UK recommend that manufacturers of sample food for the bacterium, but these bodies do not suggest any 'safe' levels for the bacterium. The FDS in USA now has agreement with France for certification of imported cheese for the absence of Listeria.

Listeria may have been transmitted in foods for years but its importance in food hygiene has only recently become clear. Its control however may prove difficult.

(Chemical Weekly. 34(5), 1988., 76-77)

355 Cadmium in cuttle fish

Experiment conducted in the Central Institute of Fisheries Technology (CIFT), Cochin, has revealed that removing the liver from cuttle fish before processing is an effective method to keep the fish free from cadmium content.

Cadmium is highly toxic to man and has been implicated as possible causes of hyper tension. Kidney ailments and skeletal deformation, according to a CIFT release

(Financial Express 1 October 1988, 8)

356 Wall coating eradicates fungus and bacteria

Steridex manufactured by Liquid Plastics Ltd, UK, is a tough and highly durable, plastics based coating, which eliminates the growth of micro-organi such as mould, fungi, yeast and bacterial colonies on its surface. It is water based and is free from phenols, mercurials, arsenic and toxic heavy metal complexes. Its highly effective fungicidal system does not leach out as in conventional fungicidal paints but lasts throughout the life of the product. It is highly elastic and expands and contrasts with thermal and structural movement obviating cracking and flaking. Easily applied with brush or spray equipment, Steridex forms a tightly adherent tough plastic skin which is vapour permeable to allow damp surfaces to dry out while providing a barrier against further water ingress. It is specifically designed for use in the pharmaceutical industry, food and beverage industry, hospitals, clinics, electronic and high technology clean rooms and whenever the strictest hygiene controls are essential.

For more details write to: Klenzaids Micro-Environment Systems Pvt Ltd A-21 MIDC Indl. Area, Andheri (East), Bombay 400 093

(Chemical Products Finder 7(5), 1988, 87)

TRANSFER OF TECHNOLOGY AND NEW INDUSTRIES

357 Undersea marine biotechnology

The new world of undersea biotechnology is the focus of a research programme planned by Japan's MITI. The project will investigate 1500 varieties of marine plants and animals including kelp, isolating useful chemicals and finding ways to produce them through genetic engineering.

The researchers will need to develop new technologies for cultivating cells in conditions similar to those under the sea. One goal is to study microorganisms that could clean up marine pollution and find ways to improve them and cultivate them on an industrial scale.

The project is due to get underway in the autumn of 1988, although officials report that the approval of the budget is still to be received from MITI. The MITI has targeted biotechnology as a vital industry for Japan's future.

At least 12 Japanese companies have said they are interested in forming the marine project, which will be based at two centres to be built at a cost of ₺ 26 million

(Chemical Weekly 34(9), 1988, 75)

358 Kotharis setting up beer project

Kothari Industrial Corporation is setting up a Rs. 4.71 crore project at Hallkhed in Bidar district in Karnataka, for the production of beer. The project will have a licensed capacity of 50,000 hecto litres. The estimated annual turnover from the project is put at Rs. 2.60 crore.

(Chemical Products Finder 7(4), 1988, 160)

359 20th Century diversifies

20th Century Finance Corporation has diversified into the manufacture of fruit juices in tetrapacks in a joint venture project at Ghaziabad near Delhi. The plant is expected to go on stream in mid-September, 1988.

(Industrial Products Finder 16(11), 1988, 65)

360 Food Specialities new project

FOOD Specialities Ltd is setting up a new factory for producing instant coffee in Nanjangud, Karnataka. The plant is expected to be in operation by the end of this year. The company has also embarked upon a modernisation-cum-expansion scheme at the existing unit in Moga.

(Chemical Products Finder 7(3), 1988, 134)

361 All-India Tasty Bite launch soon

Tasty Bite Eatables Ltd has commenced production of ready-to-serve food and frozen vegetables. The company's ready-to-serve foods, first of their kind in India, have a 12 month shelf life without refrigeration.

The first commercial launch in Bombay received good response from consumers. Encouraged by this, the company has set a turnover target of about Rs. 5.00 crores by March 1989. The product will soon be launched all over India, including in semi-urban areas.
(Business India 31 October-13 November 1988, 16)

362 Indo Japan Photo's food division launches product

The Food Division of the Indo Japan Photo Film Co. Ltd. has launched its first ready-to-eat products under the name of Kirrmax. The company's plant, set up at Gurgaon, is fitted with imported machinery from the UK and the Netherlands. The company is poised to launch breakfast cereals soon.
(Chemical Products Finder 7(3), 1988, 125)

363 Ready-to-eat products from Snack Foods

NANO Bhai Snack Foods, promoted by Mr. Nav n Shah, is going in a big way for the manufacture of ready-to-eat food products. For the first time in the country, the company has introduced potato bhujia in a unique packaging that protects the products in four different ways to ensure crisp freshness for months. Initially, this has been launched in Delhi and Madhya Pradesh.
(Chemical Products Finder 7(5), 1988, 157)

364 New brand cottonseed oil launched

HYNOUP Food and Oil Industries Ltd, the Ahmedabad-based firm, has launched Maruti, an agmark-bearing cottonseed oil, in Delhi and surr-ounding areas. This cottonseed oil has high percentage of poly-unsaturated-fats, which is good for the heart and easy to digest. It is also less expensive.
(Chemical Products Finder 7(5), 1988, 161)

365 Soyabean processing plant in Orissa

ORISSA Agro-Industries Corporation (OAIC) is promoting a Rs. 1 crore soyabean oil-cum-cake processing plant, to be set up in the south-western parts of Orissa. The plant, which will be the first of its kind in Orissa, will be on stream by next year. It will be producing hig protein ready-to-eat food, according to Mr Hrushikesh Panda, Managing Director of OAIC.
(Chemical Products Finder 7(5), 1988, 159)

366 TN Salt Corporation Project to go on stream

The Tamil Nadu Salt Corporation's iron-fortified salt project (IFSP), which is the first of its kind in India, is poised to launch the commercial production. Trial runs have already been successfully conducted and the product has been given a clean chit by laboratory.

This Rs 25 lakh project, funded by UNICEF, is coming up in Vallikonam in Ramanathapuram district. The project capacity is 15,000 tonnes per annum. But in the first year of operation, it plans to product 6,900 tonnes of iron-enriched salt.

The iron-fortified salt is superior to that of the iodized salt in more than one way, claims Mr. D Sridharan, Chairman of the Tamil Nadu Salt Corporation.
(Chemical Products Finder 7(4), 1988, 158)

PERSONALIA

Nil.

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